IDS-1112

Industrial Wireless Device Server

User's Manual

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Getting to Know your Wireless Media Gateway

1.1 Overview

The ORing IMG-8042 is an innovative 4port RS232/422/485 Serial Wireless Gateway. You can conveniently manage the device by windows Tool The Media Gateway provides a fast and effective ways of communicating to the internet over wired or wireless LAN. In addition, multiple kinds of WAN connection are provided for easily access to the internet.

The ORing IMG-1321-D wireless Media Gateway is with IEEE 802.11a/b/g or IEEE 802.11b/g high-performance wireless equipment. It is capable of data transfer rates up to 54Mbps. It is easy for you to extend the reach and number of computers connected to your wireless network.

With build-in HSUPA WAN connection, the ORing IMG-1321-D wireless Media Gateway can be mounted in harsh environment easily to provide internet access anytime and anywhere.

The ORing IMG-1321-D wireless Media Gateway's VPN capability creates encrypted "Virtual Tunnels" through the internet, allowing remote or traveling users for secured connection with the network in your office.

1.2 Software Features

- Intuitive Web-based management user interface for simply and easily operation.
- USB connectivity providing Internet access via the USB to RS232 convertor + modem or 3G HSDPA module (HUAWEI E220) directly.
- Functions of firewall provides many security features such as blocking attacks from hacker, especially IP Spoofing, Ping flood, Ping of Death, DOS, DRDOS, Stealth Scan, ICMP flooding etc.
- Advanced firewall configuration to extend the capability and security, such as Virtual

Server, Port Trigger, DMZ host, UPnP auto Forwarding, IP Filter and MAC filter.

1.3 Hardware Features

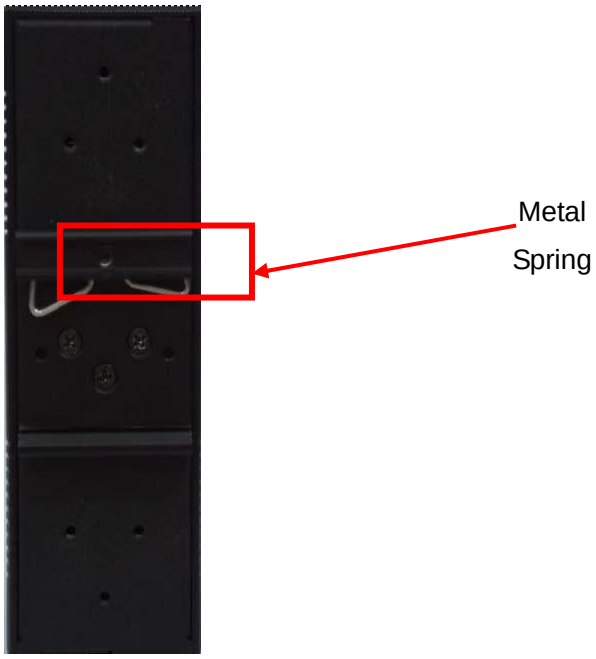
- Two 10/100Base-T(X) Ethernet ports for WAN / LAN connection individually.
- Redundant Power Inputs: 12~48 VDC on terminal block
- 4 digital inputs/outputs on terminal block
- Casing: IP-40
- Dimensions(W x D x H) : 72(W)x29.4(D)x123.4(H) mm
- Operating Temperature: -10 to 60°C
- Storage Temperature: -40 to 85°C
- Operating Humidity: 5% to 95%, non-condensing

Hardware Installation

2.1 Installation Media Gateway on DIN-Rail

Each Wireless Media Gateway has a DIN-Rail kit on rear panel. The DIN-Rail kit helps Media Gateway to fix on the DIN-Rail.

Step 1: Slant the Media Gateway and mount the metal spring to DIN-Rail.

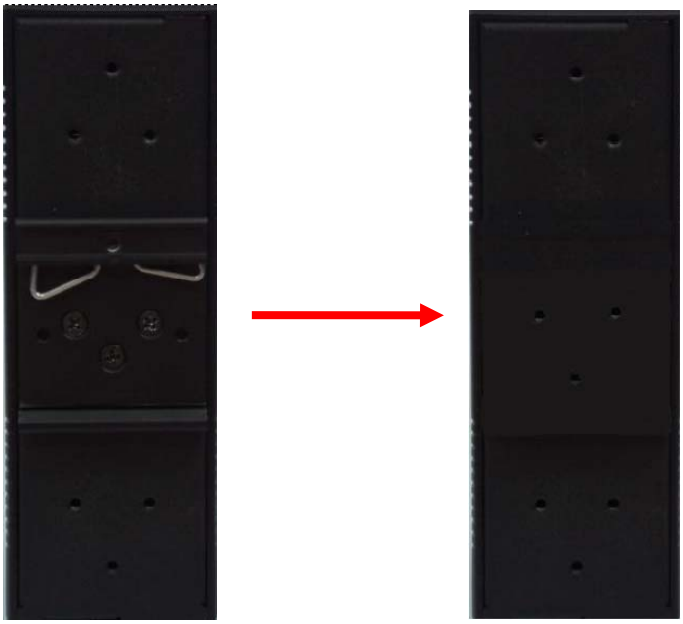


Step 2: Push the Media Gateway toward the DIN-Rail until you heard a "click" sound.

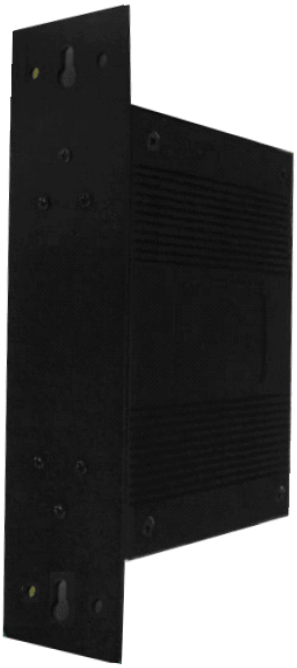
2.2 Wall Mounting Installation

Each Media Gateway has another installation method to fix the Media Gateway. A wall mount panel can be found in the package. The following steps show how to mount the Media Gateway on the wall:

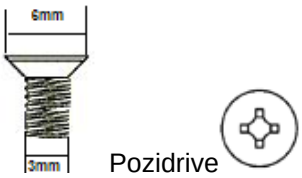
Step 1: Remove DIN-Rail kit.



Step 2: Use 6 screws that can be found in the package to combine the wall mount panel. Just like the picture shows below:

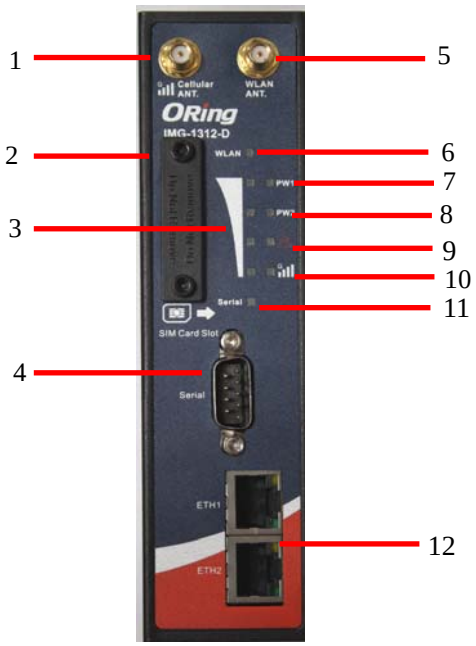


The screws specification shows in the following two pictures. In order to prevent the Media Gateways from any damage, the screws should not larger than the size that used in IMG-1312-D.



Hardware Overview

3.1 Front Panel



1. 850/900/1800/2100MHz antenna for internal HSUPA modem
2. HSUPA Cellular Modem with SIM card slot
3. WLAN signal strength indicator, WLAN Strength: 1<25% , 2<50%, 3<75%, 4<100%
4. RS-232 serial port.
5. WLAN Antenna
6. WLAN LED indicator, light up after the wireless is enable.
7. LED for PWR1 and system status. When the PWR1 links, the green LED will be light on.
8. LED for PWR2 and system status. When the PWR2 links, the green LED will be

light on

9. LED for fault indicator. When fault occurred, this red LED will be light on.
10. LED for HSUPA modem connection.
11. LED of serial port. Green for transmitting, red for receiving
12. 10/100Base-T(X) Ethernet port

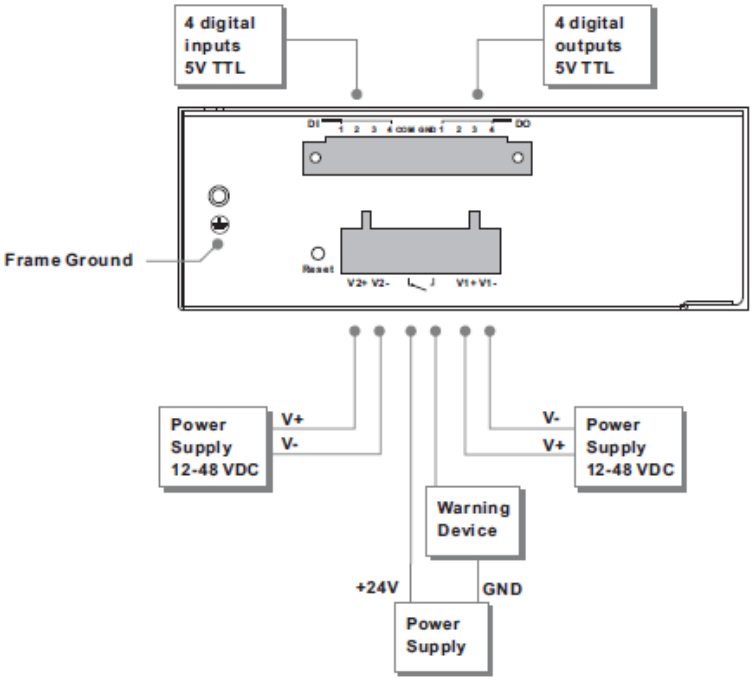
3.2 Front Panel LEDs

The following table describes the labels that stick on the IMG-1312-D.

LED	Color	Status	Description
WLAN	Green	On	WLAN activated.
		Blinking	WLAN Data transmitted.
PWR1	Green / Red	Green On	DC power 1 activated.
		Green blinking	Device booting
PWR2	Green / Red	Green On	DC power 2 activated.
		Green blinking	Device booting
⚠	Amber	On	Fault relay. Power failure or Port link down.
WLAN Strength	Green	On	WLAN signal strength. 1<25%, 2<50%, 3<75%, 4<100%
G	Green	On	Modem Ready
Serial	Green	Blinking	Serial port is transmitting data
	Red	Blinking	Serial port is receiving data
ETH 1/2	Green/Amber	Green On/Blinking	100Mbps LNK/ACT
		Amber On/Blinking	10Mbps LNK/ACT

3.3 Bottom Panel

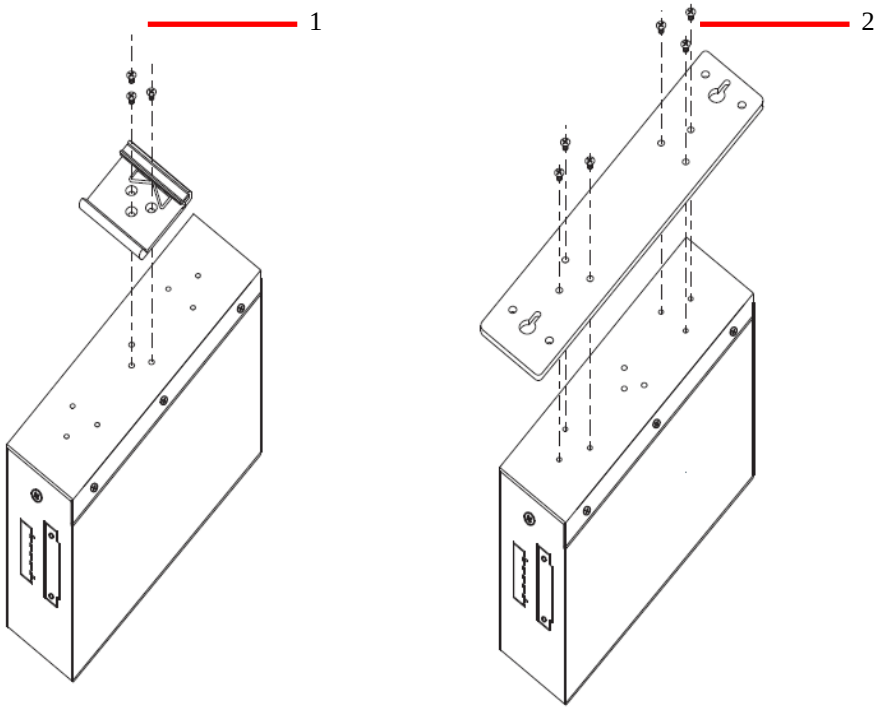
The bottom panel components of IMG-1312-D are shown as below:



3.4 Rear Panel

The rear panel components of IMG-1312-D are shown as below:

1. Screw holes for wall mount kit.
2. DIN-Rail kit



Cables and Antenna

4.1 Ethernet Cables

The IMG-1312-D Media Gateways have standard Ethernet ports. According to the link type, the Media Gateways use CAT 3, 4, 5, 5e UTP cables to connect to any other network device (PCs, servers, switches, Media Gateways, or hubs). Please refer to the following table for cable specifications.

Cable Types and Specifications

Cable	Type	Max. Length	Connector
10BASE-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100BASE-TX	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

100BASE-TX/10BASE-T Pin Assignments

With 100BASE-TX/10BASE-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

RJ-45 Pin Assignments

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	Not used
5	Not used
6	RD-
7	Not used
8	Not used

The IMG-1312-D Media Gateways support auto MDI/MDI-X operation. You can use a straight-through cable to connect PC and Media Gateway. The following table below shows the 10BASE-T/ 100BASE-TX MDI and MDI-X port pin outs.

MDI/MDI-X pins assignment

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	Not used	Not used
5	Not used	Not used
6	RD-(receive)	TD-(transmit)
7	Not used	Not used
8	Not used	Not used

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

4.2 Wireless Antenna

A 2.4GHz antenna is used for IMG-1312-D and connected with a reversed SMA connector. External antenna also can be applied with this connector.

Management Interface

5.1 First-time Installation

Before installing IMG-1312-D WLAN Media Gateway, you need to access the WLAN Media Gateway by a computer equipped with an Ethernet card or wireless LAN interface. Using an Ethernet card to connect to LAN port is easier and recommended.

Step 1: Select the Power Source

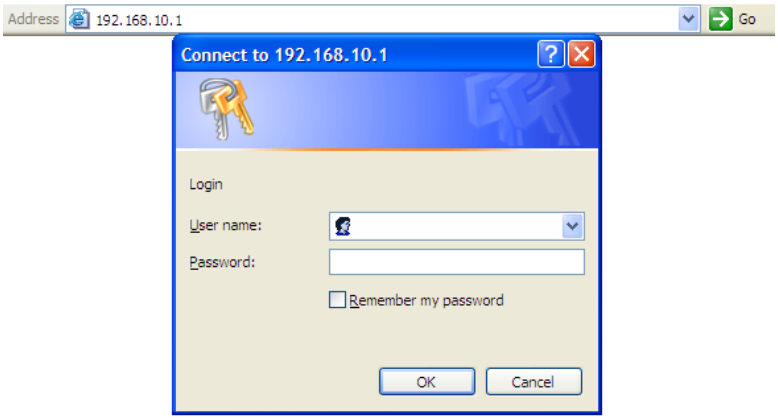
IMG-1312-D Media Gateway can be powered by +12~48V DC power input, or by P.O.E. (Power over Ethernet) PSE Ethernet switch.

Step 2: Connect a computer to IMG-1312-D

Use either a straight-through Ethernet cable or cross-over cable to connect to ETH1 of IMG-1312-D Media Gateway to a computer. If the LED of the LAN port lights up, it indicates the connection is established. After that, the computer will initiate a DHCP request to get an IP address from the Media Gateway.

Step 3: Use the web-based manager to configure IMG-1312-D

The default gateway IP of IMG-1312-D Media Gateway is 192.168.10.1. Start the web browser of your computer and type http://192.168.10.1 in the address box to access the webpage. A login window will popup, and then enter the default login name **admin** and password **admin.**



Login

5.2 Main Interface

The **Home** will be shown when login successfully.

Main Interface

In the page, you can check the Firmware version, the Media Gateway up time and the WAN IP setting.

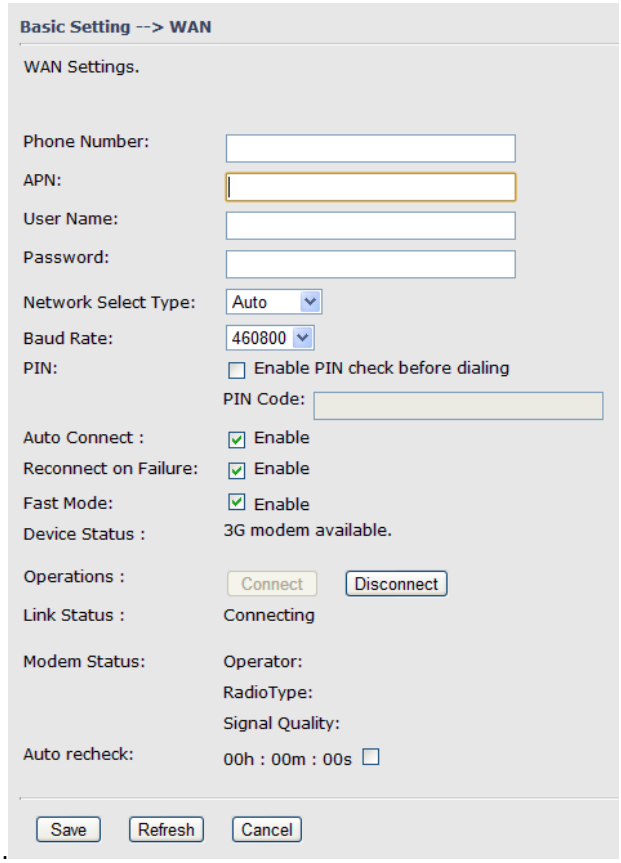
The following table describes the labels in this .

Label	Description
Firmware	Show the current firmware version.
Uptime	Show the elapsed time since the Media Gateway is started.
Wan IP	Show the WAN IP address.

5.3.1 Basic Setting

WAN

The IMG-1312-D Media Gateway provide 3G WAN connection.



Modem/3G

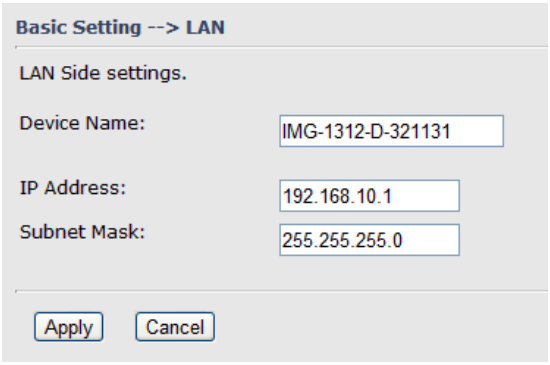
The following table describes the labels in this .

Label	Description
Phone Number	Telephone number provided by your ISP.
APN	Enter the APN value it is optional
User Name	User name provided by your ISP.
Password	Password provided by your ISP.
PIN	Enter the PIN code if PIN check is required.
Auto Connect	If this option is enabled, the connection will be called up when Media Gateway boots up.
Device Status	Show the status of Medem/3G device.
Operations	Click "**Connect**" to call up the Modem/3G. Click "**Disconnect**" to shut down the connection.
Link Status	Show the status of connection, **up**, **down** or **connecting**.

LAN

These are the IP settings of the LAN interface for the IMG-1312-D WLAN

Media Gateway. The LAN IP address is privately for your internal network and can not be exposed on the Internet.



LAN

The following table describes the labels in this .

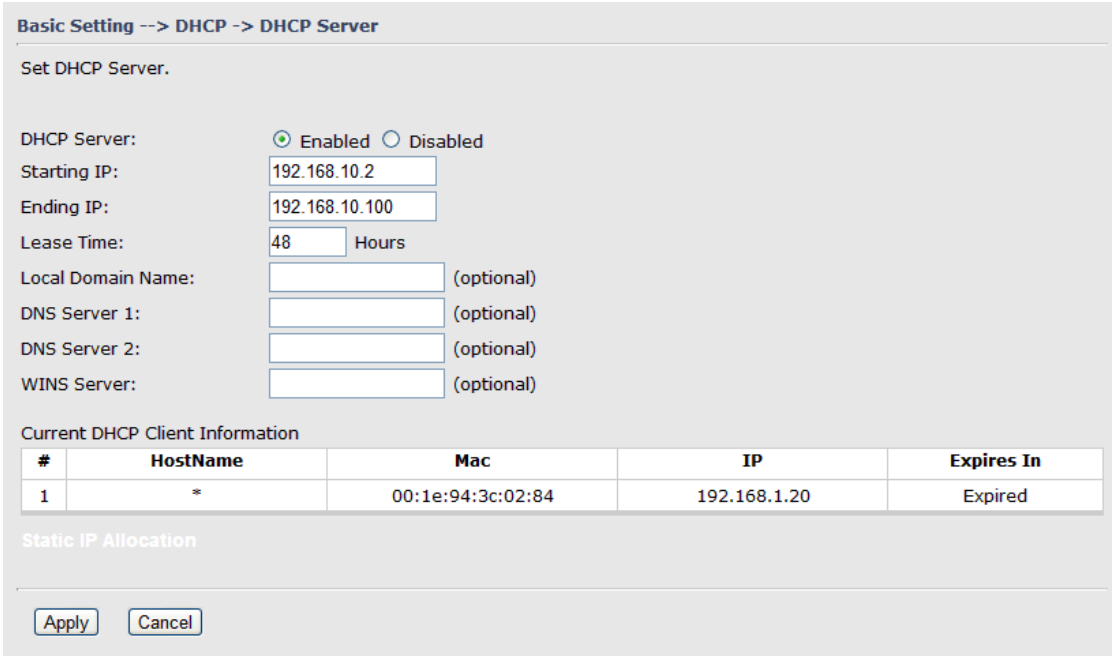
Label	Description
Device Name	Enter a name for this device
IP Address	The IP address of the LAN interface, the default IP address is 192.168.10.1
Subnet Mask	The Subnet Mask of the LAN interface, the default Subnet mask is 255.255.255.0

DHCP

DHCP stands for Dynamic Host Control Protocol. The IMG-1312-D Media Gateway with a built-in DHCP server. The internal DHCP server will assign an IP address to the computers (DHCP client) on the LAN automatically.

Set your computers to be DHCP clients by setting their TCP/IP settings to Obtain an IP Address Automatically. The DHCP server will allocate an unused IP address from the IP address pool to the requesting computer automatically.

1. DHCP Sever



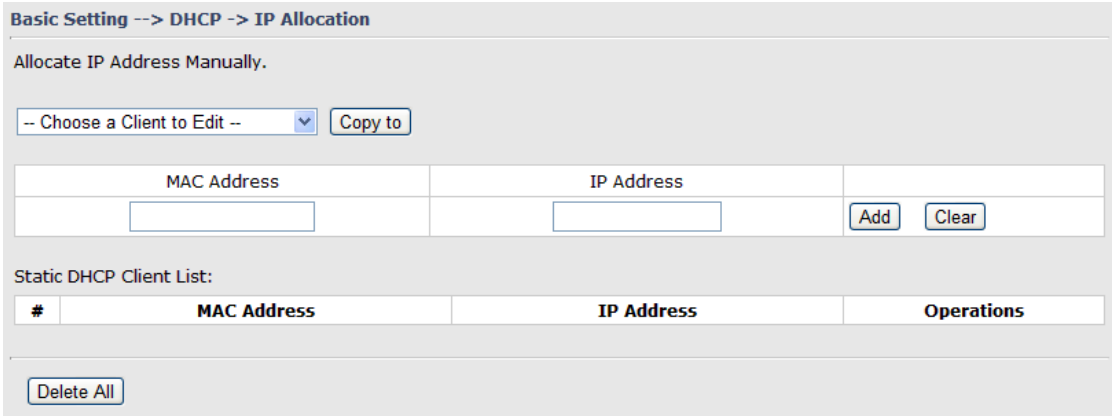
DHCP Server

The following table describes the labels in this .

Label	Description
DHCP Server	Enable or Disable the DHCP Server. The default setting is Enable
Starting IP	The starting IP address of the IP range for the DHCP server
Ending IP	The ending IP address of the IP range for the DHCP server
Lease Time	The period of time for the IP to be leased. Enter the Lease time. The default setting is 48 hours.
Local Domain Name	Enter the local domain name of private network. It is optional.
DNS Server 1&2	Enter the DNS Server. It is optional.
WINS Server	Enter the WINS Server. It is optional.
Current DHCP Client Information	List of the computers on your network that are assigned an IP address by internal DHCP server.

2. IP Allocation

The IP Allocation provides one-to-one mapping of MAC address to IP address. When a computer with the MAC address requesting an IP from the IMG-1312-D Media Gateway, it will be assigned with the IP address according to the mapping. You can choose one from the client lists and add it to the mapping relationship.

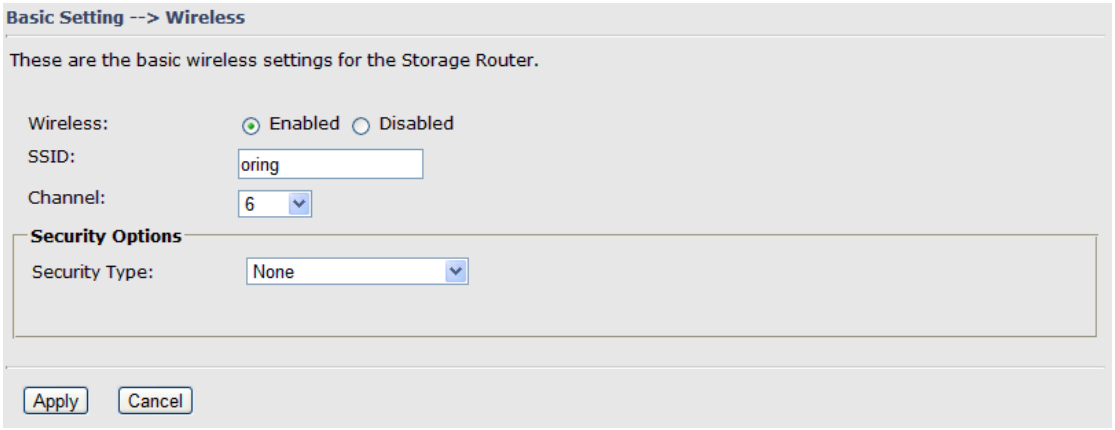


IP Allocation

The following table describes the labels in this .

Label	Description
Choose a Client to Edit	The list shows the MAC addresses and IP addresses that are already assigned by IMG-1312-D. Choose one from the list and click **Copy to** button for editing.
MAC Address	The MAC addresses of the computer.
IP Address	The IP address to be related to the MAC address.
Static DHCP Client List	The list shows the MAC address and IP address one-to-one relationship.

Wireless



Wireless

The following table describes the labels in this .

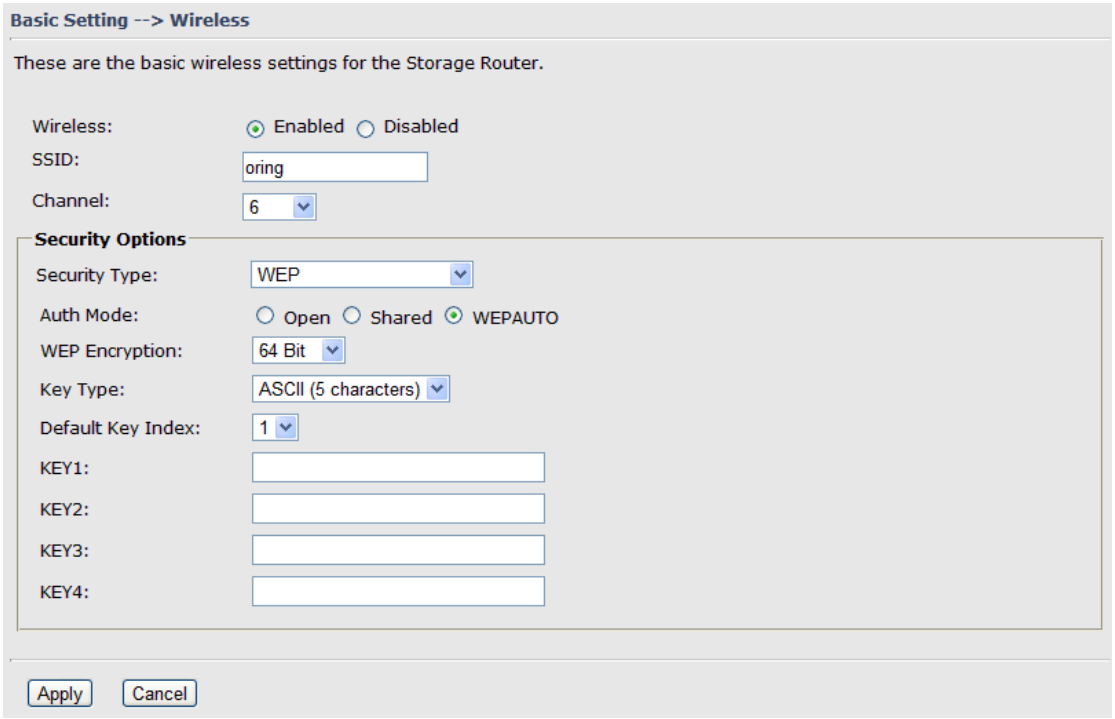
Label	Description
SSID	Service Set Identifier (SSID) is a unique name that identifies a network. All devices on the network must set the same SSID name in order to communicate on the network. If you change

	the SSID from the default setting, input your new SSID name in this field.
Channel	Channel 6 is the default channel. All devices on the network must share the same channel.* ***Note:** The wireless devices will automatically scan and match the wireless setting of the Media Gateway with the same SSID.
Security options	Select the type of security for WLAN connection: **None:** disable encryption. **WEP:** Wired Equivalent Privacy (WEP) is a wireless security protocol for WLAN. WEP provides data encryption for communicating over the WLAN. **WPA-PSK/WPA2-PSK:** WPA-PSK or WPA2-PSK with a pre-shared key, each authorized computer is given the same pass phrase. **WPA/WPA2:** Wi-Fi Protected Access (WPA) authentication in conjunction with a RADIUS server.

Security Type – None

No security protection for WLAN.

Security Type – WEP

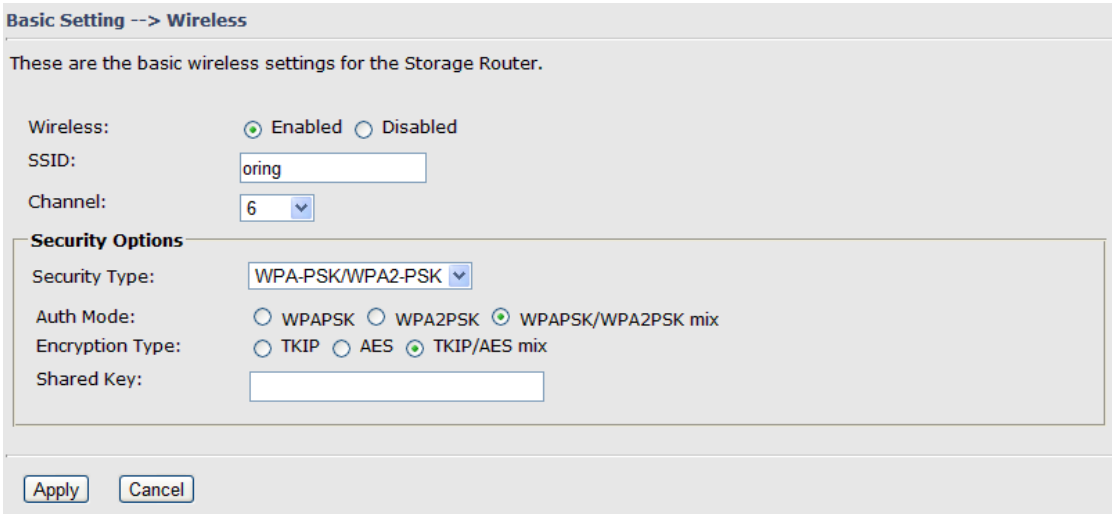


Wireless Security Type-WEP

1. Choose one of three Auth Modes: **Open**, **Share** and **WEPAUTO**
2. WEP Encryption: Select 64 Bit or 128 Bit WEP encryption.
3. Key Type: Select **ASCII** or **Hex** key type.
4. Default Key Index: Select one of the keys to be the active key.
5. Key 1-4: Input up to four encryption keys.

ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127. **Hex** digits consist of the numbers 0-9 and the letters A-F.

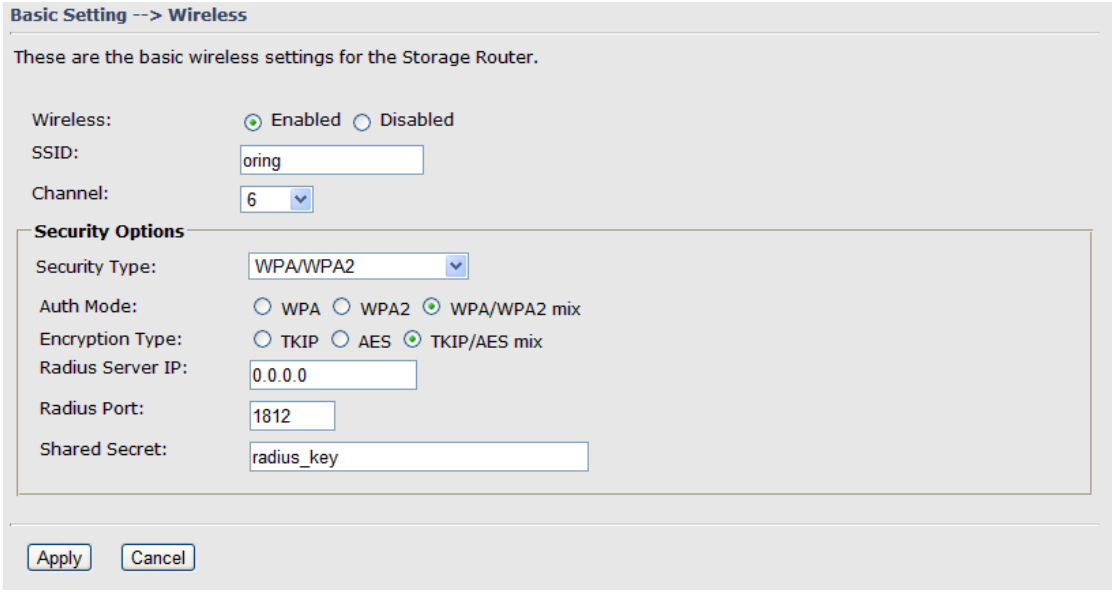
Security Type – WPA-PSK/WPA2-PSK



Wireless Security Type-WPA-PSK/WPA2-PSK

1. Security Type: Select **WPA-PSK/WPA2-PSK**.
2. Choose one of three Auth Modes: **WPAPSK**, **WPA2PSK**, **WPAPSK/WPA2PSK mix**
3. Encryption Type: Select **TKIP** or **AES** or **TKIP/AES mix**.
4. Share Key: Enter your pass phase. The pass phase should be between 8 and 64 characters.

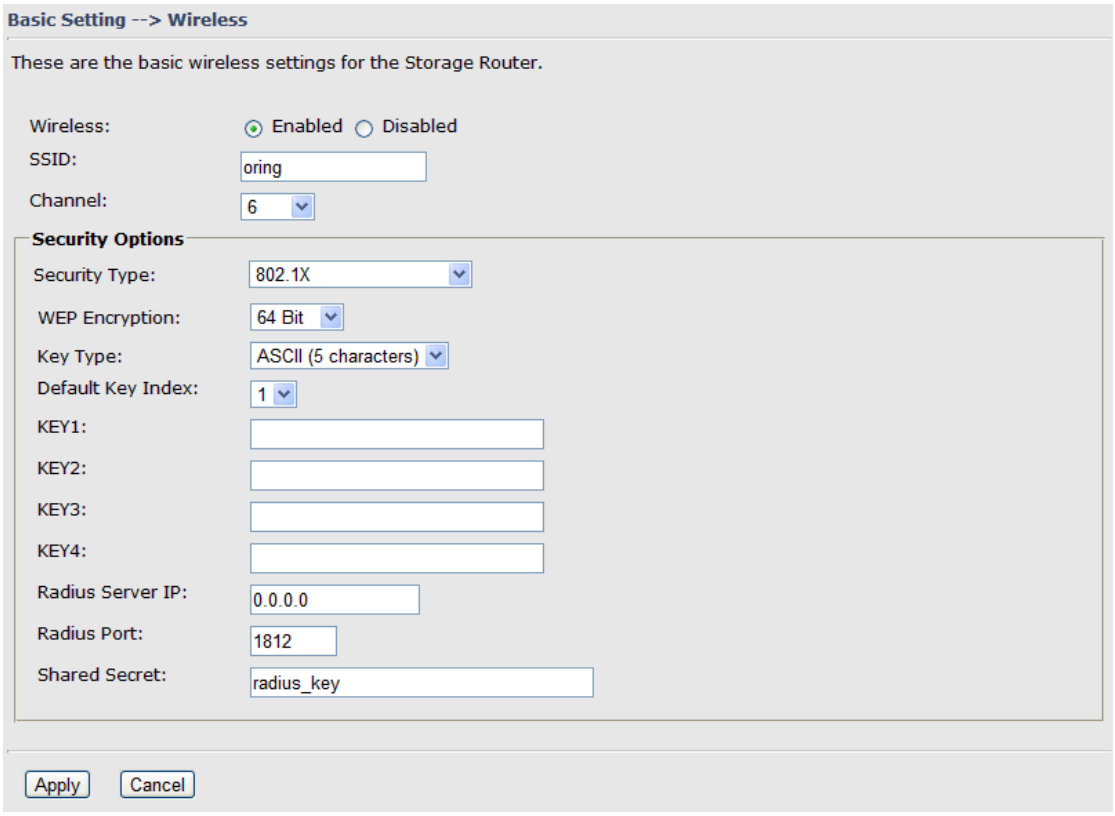
Security Type – WPA /WPA2



Wireless Security Type-WPA/WPA2

1. Security Type: Select **WPA/WPA2**
2. Auth Mode: Choose one of three Auth Modes: **WPA**, **WPA2**, **WPA/WPA2 mix**.
3. Encryption Type: Choose one of three Encryption Types: **TKIP**, **AES**, **TKIP/AES mix**.
4. Radius Server IP: Enter the IP address of the RADIUS Server.
5. Port: Enter the RADIUS port (1812 is default).
6. Shared Secret: Enter the RADIUS password or key.

Security Type – 802.1X

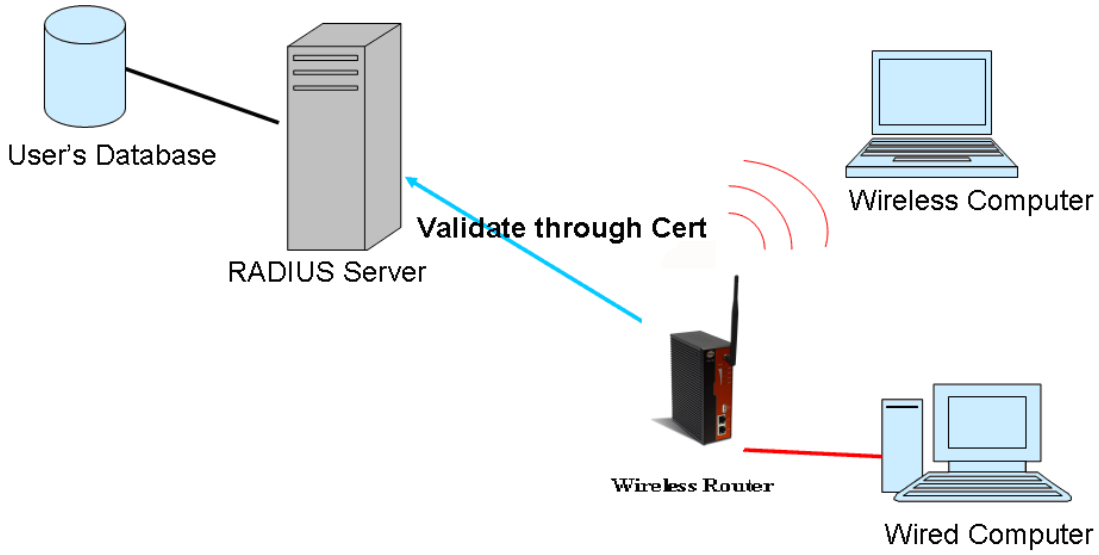


1. Security Type: Select **802.1X**
2. WEP Encryption: Select 64 Bit or 128 Bit WEP encryption.
3. Key Type: Select ASCII or Hex key type.
4. Default Key Index: Select one of the keys to be the active key.
5. Key 1-4: Input up to four encryption keys.
6. Radius Server IP: Enter the IP address of the RADIUS Server.
7. Port: Enter the RADIUS port (1812 is default).
8. Shared Secret: Enter the RADIUS password or key.

RADIUS, or Remote Authentication Dial-In User Service, is a widely deployed protocol that enables companies to authenticate, authorize and account for remote users who want access to a system or service from a central network server.

Radius server validates your proof, also carry on the authorization. So the Radius server received by ISA server responded (point out the customer carries proof to be not granted) and it means that the Radius server did not authorize you to carry. Even if the proof has already passed an identify verification, the ISA server may also refuse you to carry a claim according to the authorization strategy of the Radius server.

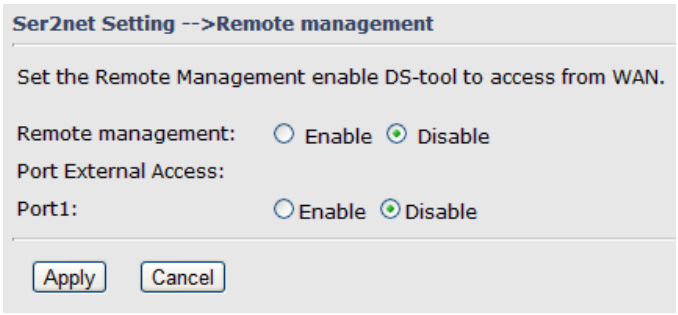
The principle of the Radius server is shown in the following pictures:



5.3.2 Serial Setting

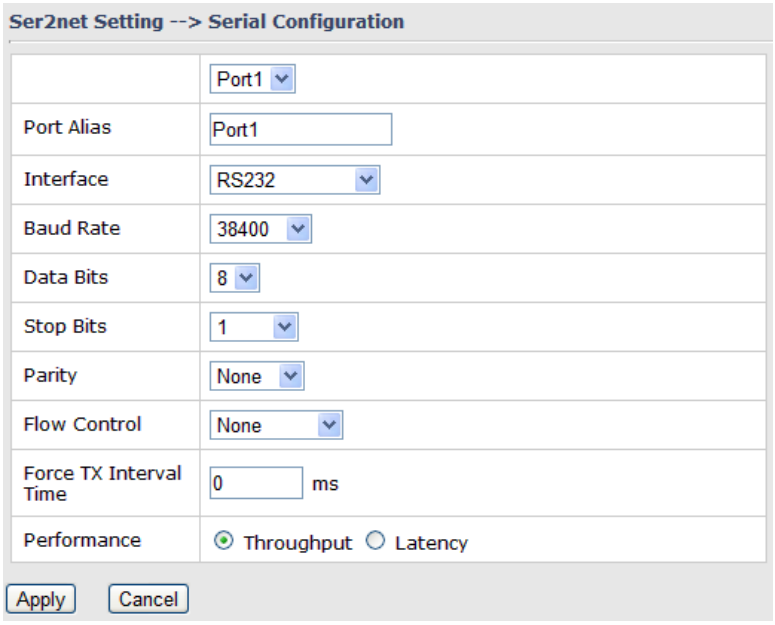
Wireless

1. Remote Management



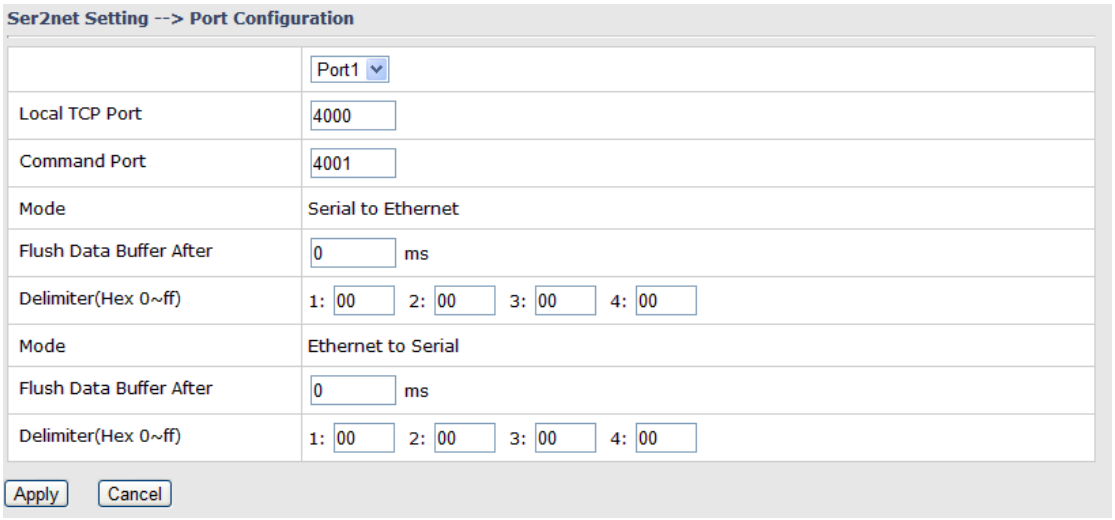
Label	Description
Remote Management	Enable to allow DS-tool to access M2M through WAN
Port External Access	Enable to allow the serial port to be access through WAN

2. Serial Configuration



Label	Description
Port Alias	Remark the port to hint the connected device.
Interface	RS232 / RS422 / RS485(2-wires) / RS485(4-wires)
Baud rate	110bps/300bps/1200bps/2400bps/4800bps/9600bps/19200bps/ 38400bps/57600bps/115200bps/230400bps
Data Bits	5, 6, 7, 8
Stop Bits	1, 2 (1.5)
Parity	No, Even, Odd, Mark, Space
Flow Control	No, XON/XOFF, RTS/CTS, DTR/DSR
Force TX Interval Time	Force TX interval time is to specify the timeout when no data has been transmitted. When the timeout is reached or TX buffer is full (4K Bytes), the queued data will be sent. 0 means disable. Factory default value is 0.
Performance	Throughput: This mode optimized for highest transmission speed. Latency: This mode optimized for shortest response time.
Apply	Activate settings on this page.

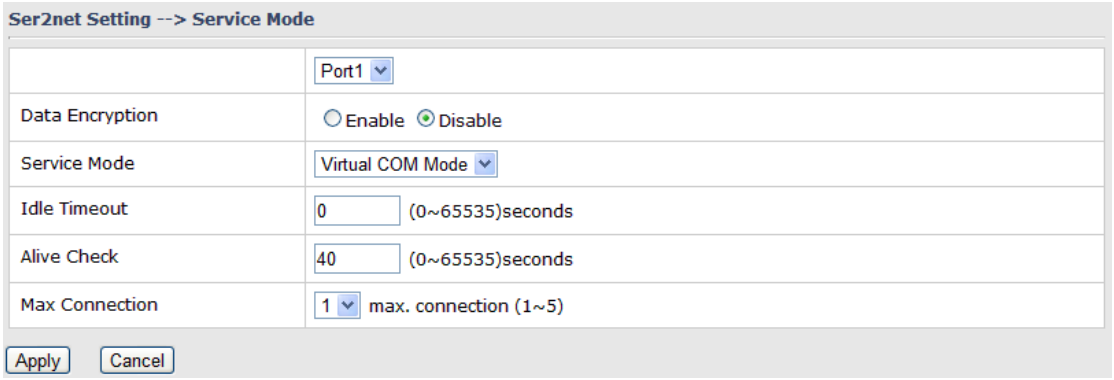
3. Port Profile



Label	Description
Serial to Ethernet	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush S2E data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Serial to Ethernet data buffer**" times out. 0 means disable. Factory default is 0
Ethernet to serial	**Flush Data Buffer After:** The received data will be queued in the buffer until all the delimiters are matched. When the buffer is full (4K Bytes) or after "**flush E2S data buffer**" timeout, the data will also be sent. You can set the time from 0 to 65535 seconds. **Delimiter:** You can define max. 4 delimiters (00~FF, Hex) for each way. The data will be hold until the delimiters are received or the option "**Flush Ethernet to Serial data buffer**" times out. 0 means disable. Factory default is 0

4. Service Mode -– Virtual COM Mode

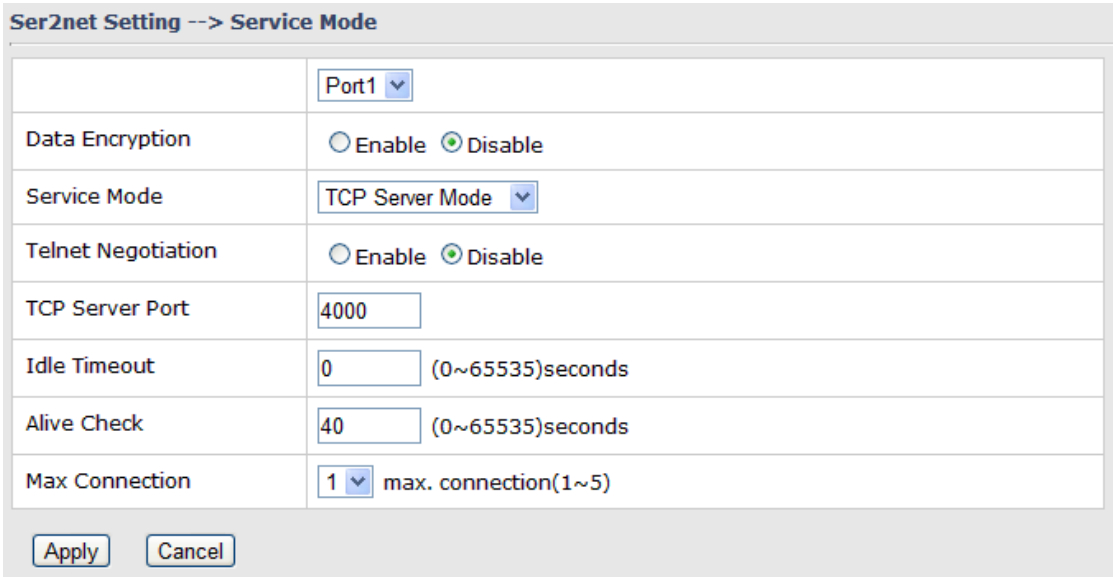
In Virtual COM Mode, the driver establishes a transparent connection between host and serial device by mapping the Port of the serial server serial port to local COM port on the host computer. Virtual COM Mode also supports up to 5 simultaneous connections, so that multiple hosts can send or receive data by the same serial device at the same time.



Label	Description
Data Encryption	Use SSL to encrypt data.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

**Not allowed to mapping Virtual COM from web*

5. Service Mode – TCP Server mode



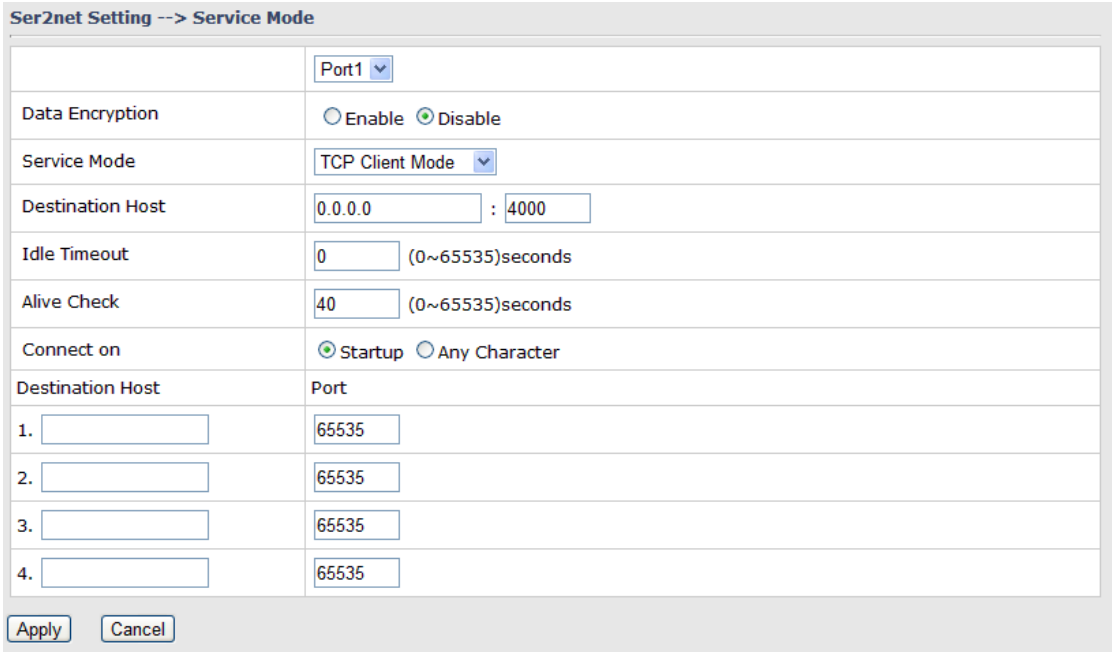
In TCP Server Mode, DS is configured with a unique Port combination on a TCP/IP network. In this case, DS waits passively to be contacted by the device. After the device establishes a connection with the serial device, it can then proceed with data transmission. TCP Server mode also supports up to 5 simultaneous connections, so that multiple device can receive data from the same serial device at the same time.

Label	Description
Data Encryption	Use SSL to encrypt data.
Telnet Negotiation	Full Telnet command / symbol compatible
TCP Server Port	Set the port number for data transmission.
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Max Connection	The number of Max connection can support simultaneous connections are 5, default values is 1.

6. Service Mode – TCP Client Mode

In TCP Client Mode, device can establish a TCP connection with

server by the method you set (Startup or any character). After the data has been transferred, device can disconnect automatically from the server by using the TCP alive check time or Idle timeout settings.

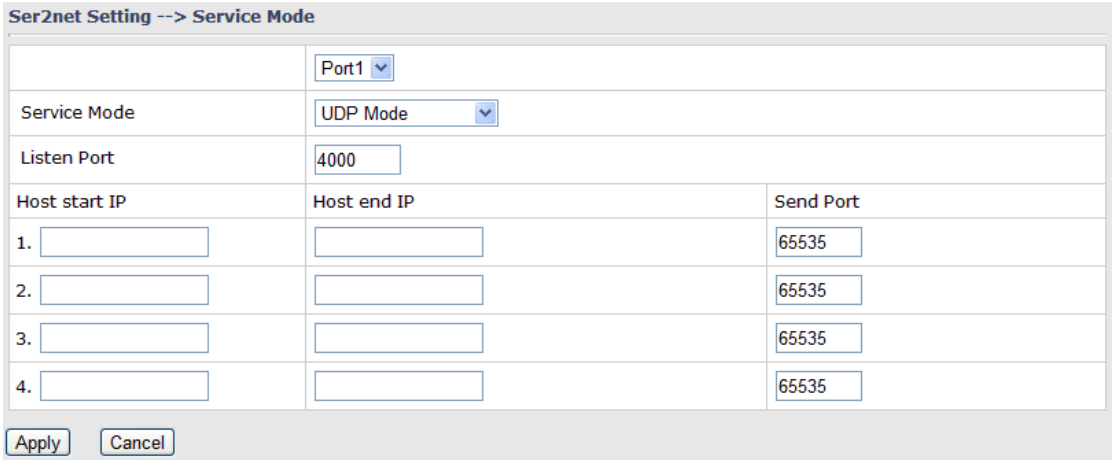


Label	Description
Data Encryption	Use SSL to encrypt data.
Destination Host	Set the IP address of host and the port number of data port. .
Idle Timeout	When serial port stops data transmission for a defined period of time (Idle Timeout), the connection will be closed and the port will be freed and try to connect with other hosts. 0 indicate disable this function. Factory default value is 0. If Multilink is configured, only the first host connection is effective for this setting.
Alive Check	The serial device will send TCP alive-check package in each defined time interval (Alive Check) to remote host to check the TCP connection. If the TCP connection is not alive, the connection will be closed and the port will be freed. 0 indicate disable this function. Factory default is 0.
Connect on Startup	The TCP Client will build TCP connection once the connected serial device is started.
Connect on Any Character	The TCP Client will build TCP connection once the connected serial device starts to send data.

7. Service Mode – UDP Mode

Compared to TCP communication, UDP is faster and more efficient.

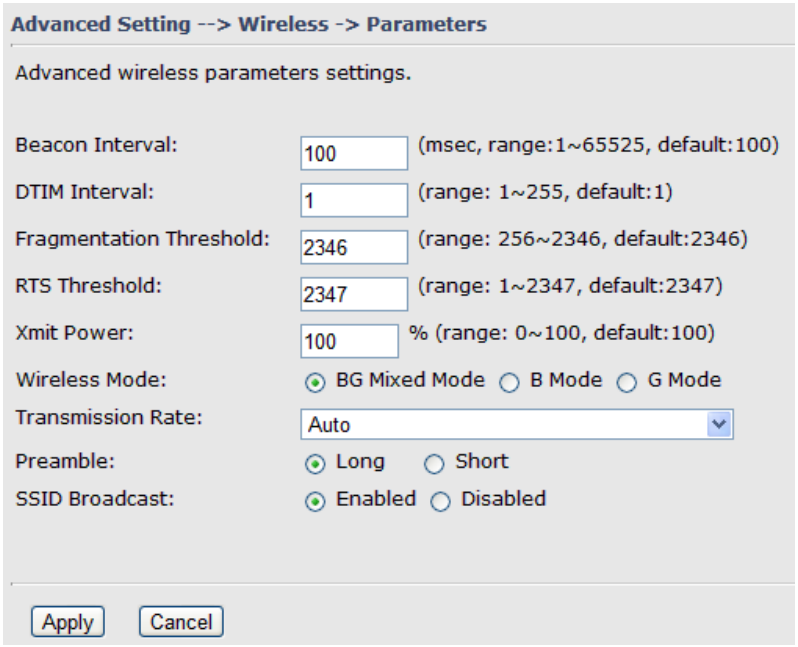
In UDP mode, you can Uni-cast or Multi-cast data from the serial device server to host computers, and the serial device can also receive data from one or multiple host



5.3.3 Advanced Setting

Wireless

1. Parameters



Parameters

The following table describes the labels in this .

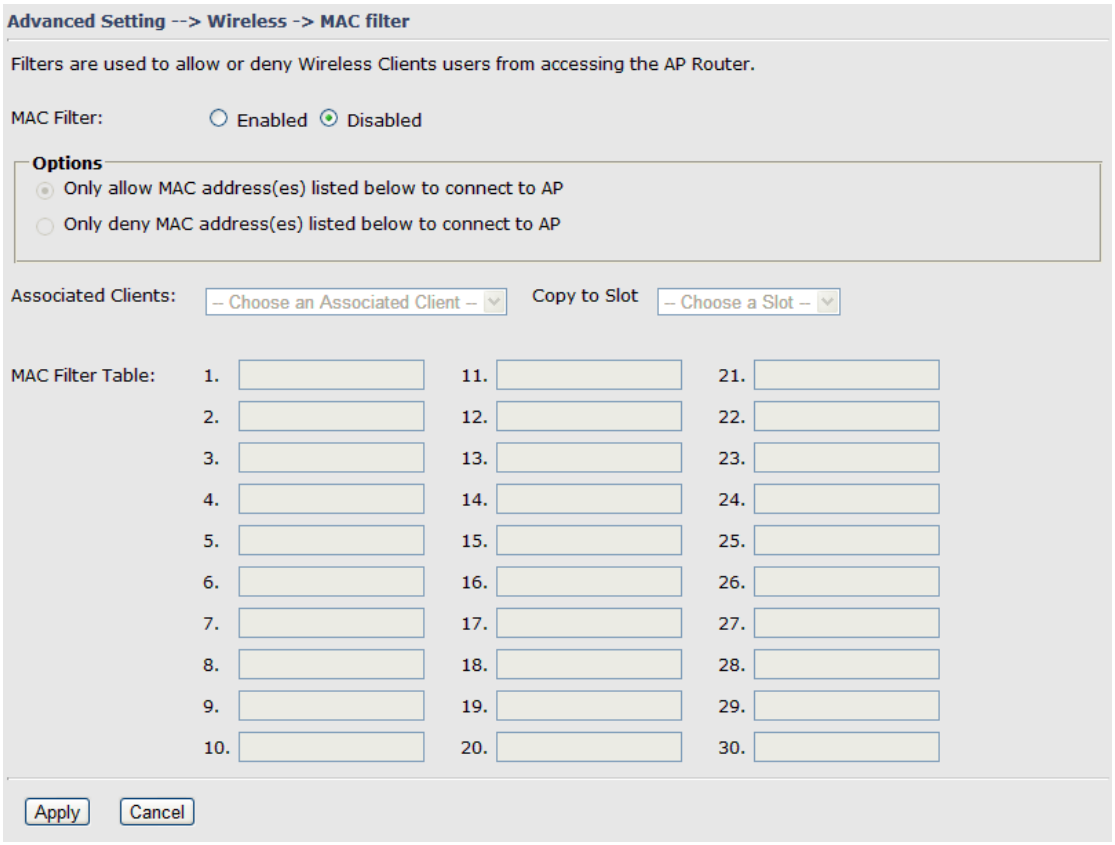
Label	Description
Beacon Interval	The default value is 100. The Beacon Interval value indicates

	the frequency interval of the beacon. A beacon is a packet broadcast by the AP to synchronize the wireless network. 50 is recommended in poor connection.
DTIM Interval	The default value is 1. This value, between 1 and 255 milliseconds, indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the AP has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Its clients hear the beacons and awaken to receive the broadcast and multicast messages.
Fragmentation Threshold	This value should remain at its default setting of 2346. The range is 256-2346 bytes. It specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor modifications of this value are recommended.
RTS Threshold	This value should remain at its default setting of 2347. The range is 0-2347 bytes. Should you encounter inconsistent data flow, only minor modifications are recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. The AP sends Request to Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission.
Xmit Power	This value ranges from 1 - 100 percent, default value is 100 percent. A safe increase of up to 60 percent would be suitable for most users. Higher power settings are not recommended for users due to excess heat generated by the radio chipset, which can affect the life of the AP.
Wireless Network Mode	If you have IEEE802.11g and IEEE802.11b devices in your network, then keep the default setting, **BG Mixed mode**. If you have only IEEE802.11g devices, select **G Mode**. If you would like to limit your network to only IEEE802.11b devices, then select **B Mode**.

Transmission Rate	The default setting is **Auto**. The range is from 1 to 54Mbps. The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds, or keep the default setting, **Auto**, to have the AP automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best and possible connection speed between the AP and a wireless client.
Preamble	Values are **Long** and **Short**, default value is **Long**. If your wireless device supports the short preamble and you are having trouble getting it to communicate with other IEEE802.11b devices, make sure that it is set to use the long preamble
SSID Broadcast	When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the AP. To broadcast the AP SSID, keep the default setting, **Enable**. If you do not want to broadcast the AP SSID, then select **Disable**.

2. MAC Filter

Use **MAC Filter** to allow or deny wireless clients to associate with IMG-1312-D Media Gateway. You can manually add a MAC address or select the MAC address from **Associated Clients** that are currently associated with IMG-1312-D.



MAC Filter

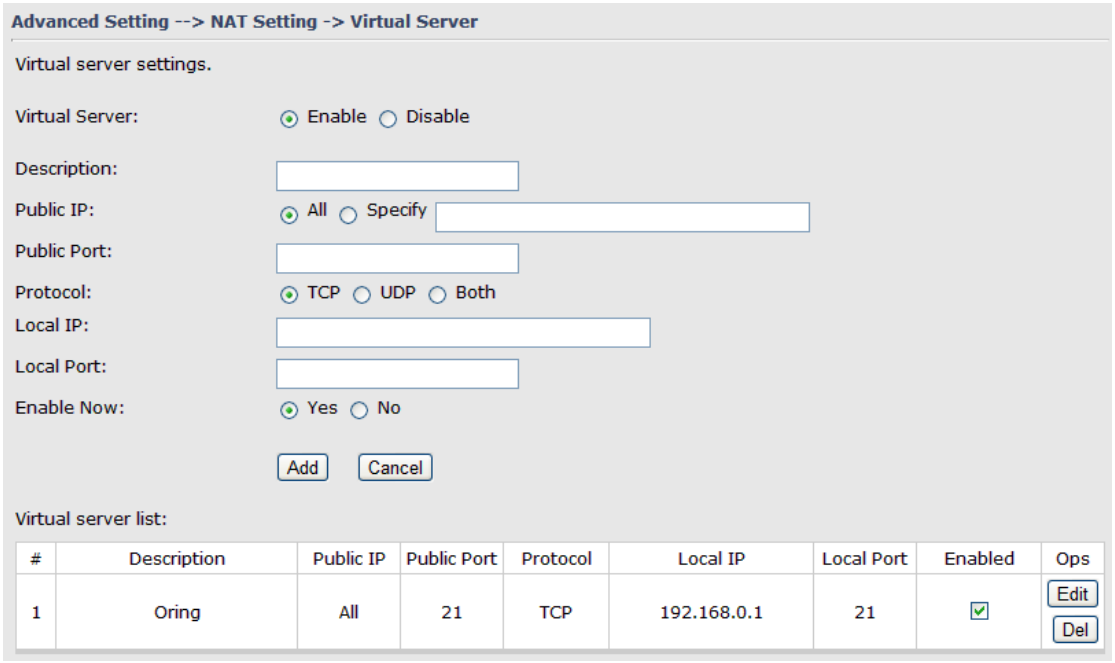
The following table describes the labels in this .

Label	Description
MAC Filter	Enable or disable the function of MAC filter.
MAC Filter List	This list shows the MAC addresses that are in the selected filter.
Connected Clients	This list shows the wireless MAC addresses that associated with AP.
MAC Address	MAC addresses for editing.
Apply	Click Apply to activate the configurations.

NAT Setting

1. Virtual Server

Virtual Server is used for setting up public services on the LAN, such as DNS, FTP and Email. Virtual Server is defined as a Local Port to the LAN servers, and all requests from Internet to this Local port will be redirected to the computer specified by the Local IP. Any PC that was used for a virtual server must have static or reserved IP Address because its IP address may change when requesting IP by DHCP.



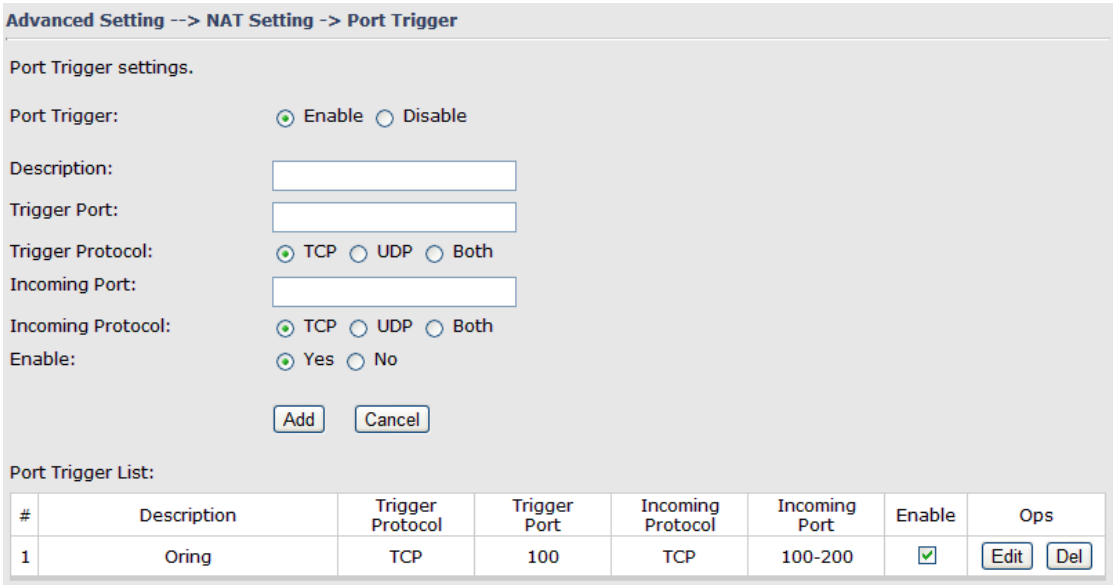
Virtual Server

The following table describes the labels in this .

Label	Description
Virtual Server	Enable or disable Virtual Server.
Description	Enter the description of the entry. Acceptable characters consist of '**0-9**', '**a-z**', '**A-Z**'. This field accepts null value.
Public IP	Enter the public IP that is allowed to access the virtual service, if not specified, choose All.
Public Port	The port number on the WAN (Wide Area Network) side that will be used to access the virtual service.
Protocol	The protocol used for the virtual service.
Local IP	The IP of the computer that will be providing the virtual service.
Local Port	The port number of the service used by the Private IP computer.
Enable Now	Enable the virtual server entry after adding it.
Virtual server list	Click **Edit** to edit the virtual service entry, **Del** to delete the entry.

2 Port Trigger

Some applications require multiple connections, like Internet games, video conferencing, Internet calling and so on. These applications cannot work with a pure NAT Media Gateway. Port Trigger is used for some of the applications that can work with an NAT Media Gateway.



Port Trigger

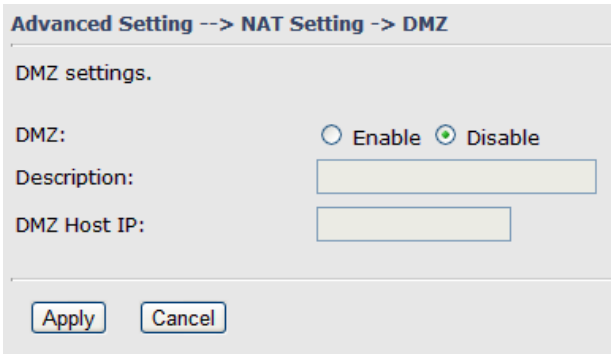
The following table describes the labels in this .

Label	Description
Port Trigger	Enable or disable Port Trigger.
Description	This is the description for the entry.
Trigger Port	This is the port used to trigger the application.
Trigger Protocol	This is the protocol used to trigger the application.
Incoming Port	This is the port number on the WAN side that will be used to access the application.
Enable	Enable the rule after adding the entry.
Port Trigger List	Click **Edit** to edit the entry, click **Del** to delete the entry.

3. DMZ

It allows a computer to be exposed to the Internet. This feature is useful for gaming purposes.

Enter the IP address of the internal computer that will be the DMZ host. Adding a client to the DMZ may expose your local network with variety of security risks, so only use this option carefully.



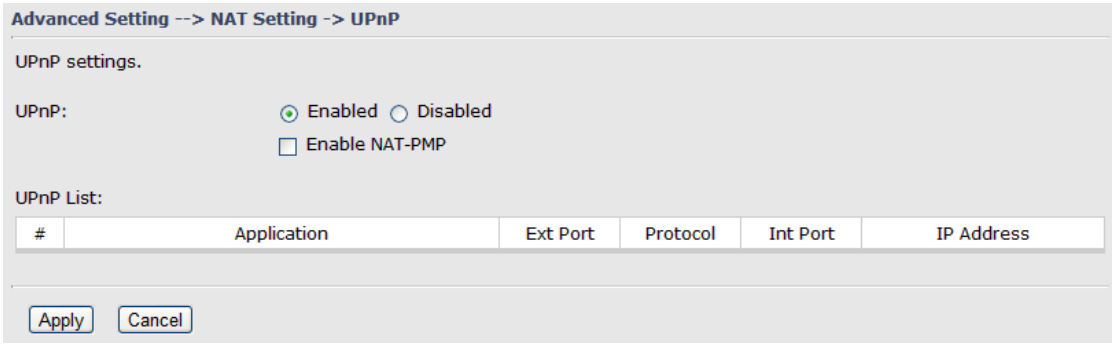
DMZ

The following table describes the labels in this .

Label	Description
DMZ	Enable or disable the DMZ.
Description	Description for the DMZ host entry.
DMZ Host IP	Enter the IP address of the computer to be in the DMZ.

4. UPnP

The UPnP (Universal Plug and Play) feature allows the devices, such as Internet computers, to access the local host resources or devices as needed. UPnP devices can be automatically discovered by the UPnP service application on the LAN.



UPnP

The following table describes the labels in this .

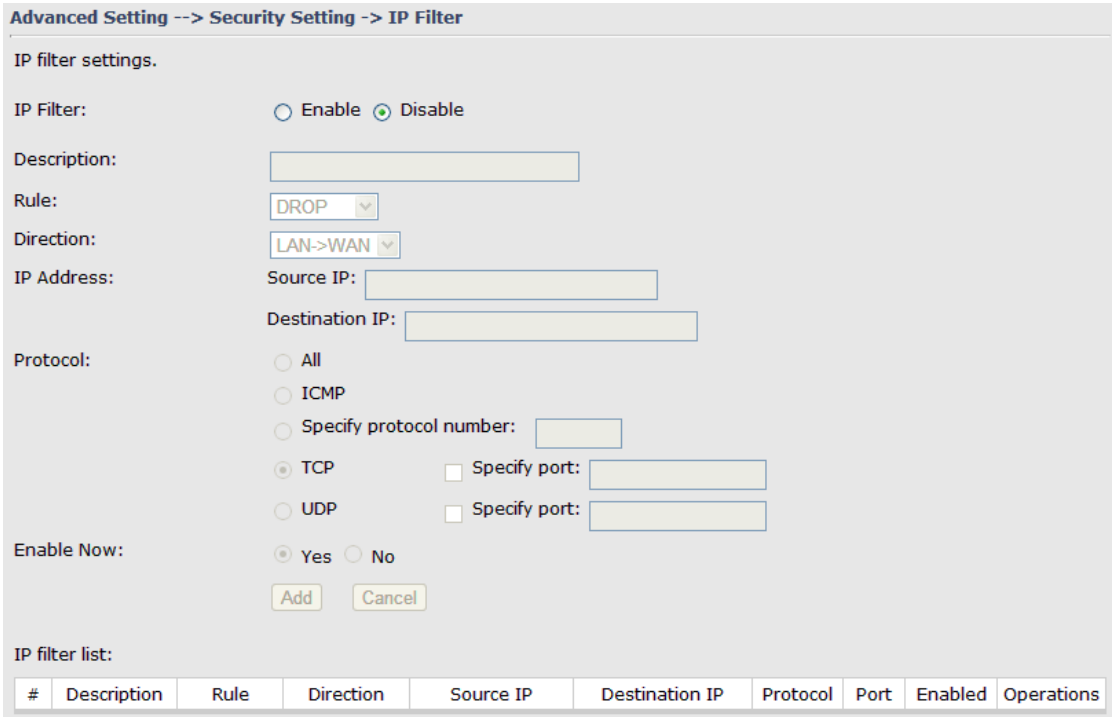
Label	Description
UPnP	Enable or disable UPnP.

Enable NAT-PMP	NAT-PMP allows a computer in a private network (behind a NAT Media Gateway) to automatically configure the Media Gateway to allow parties outside the private network to contact with each other. NAT-PMP operates with UDP. It essentially automates the process of port forwarding. Check the box to enable NAT-PMP.
UPnP List	This table lists the current auto port forwarding information. **Application:** The application that generates this port forwarding. **Ext Port:** The port opened on WAN side. **Protocol:** The protocol type. **Int Port:** The port redirected to the local computer. **IP Address:** The IP address of local computer to be redirected to. **Status:** This status shows if the entry is valid or not.

Security Setting

1. IP Filter

Filters are used to deny or allow LAN computers from accessing the internet. It also allow or deny WAN hosts to access LAN computers.



IP Filter

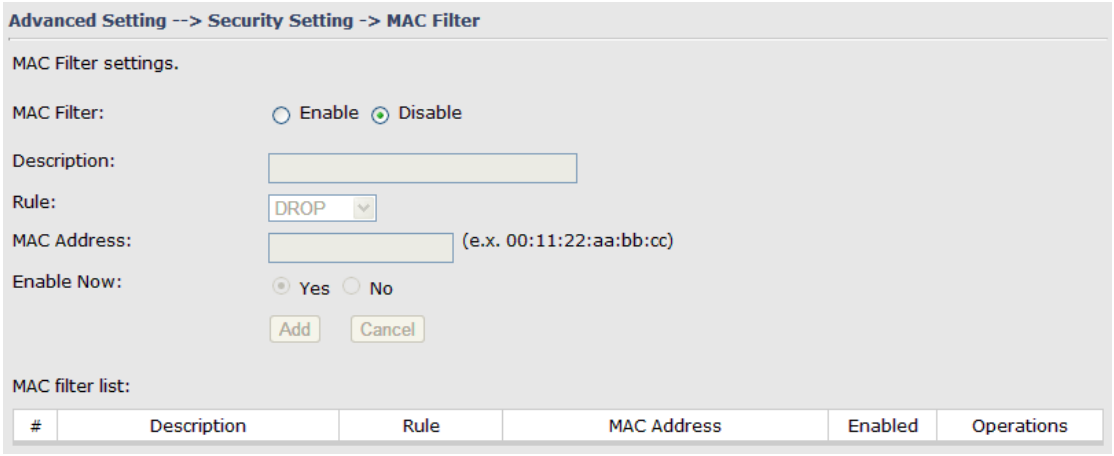
The following table describes the labels in this .

Label	Description

IP Filter	Enable or disable the IP Filter.
Description	Enter description for the entry.
Rule	Select **DROP**, **ACCEPT** and **REJECT** rule for the entry.
Direction	Specify the direction of the data flow that is to be filtered.
IP Address	Enter the IP address of the source and destination computer.
Protocol	Choose which protocol to be filtered.
Enable Now	Enable the entry after adding it.
IP filter list	Click **edit** for editing the entry, click **Del** to delete the entry.

2. MAC Filter

Filters are used to deny or allow LAN computers from accessing the internet, according to their MAC address.



MAC Filter

The following table describes the labels in this .

Label	Description
MAC Filter	Enable or disable the MAC Filter.
Description	Enter the description for the entry.
Rule	Select **DROP**, **ACCEPT** and **REJECT** rule for the entry.
MAC Address	Enter the MAC address to be filtered.
Enable Now	Enable the entry after adding it.
IP filter list	Click **Edit** for editing the entry, click **Del** to delete the entry.

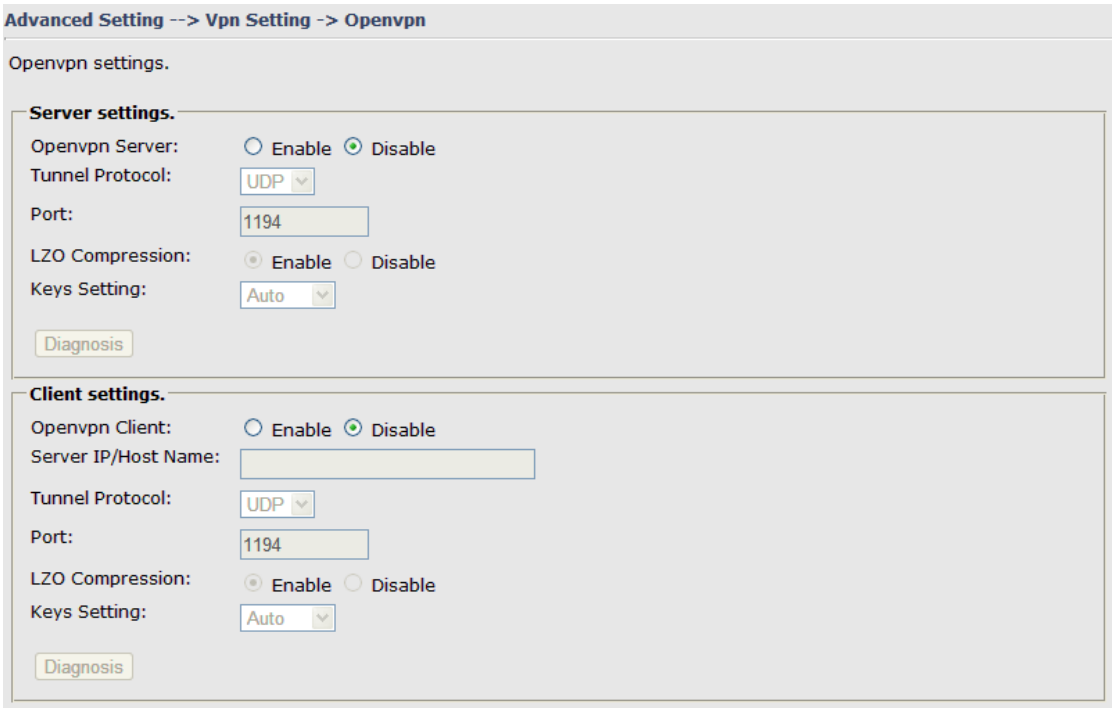
VPN Setting

VPN Setting is settings that are used to create virtual private tunnels to remote VPN gateways. The tunnel technology supports data confidentiality, data origin, authentication and data integrity of network information by utilizing encapsulation

protocols, encryption algorithms, and hashing algorithms.

1. Open VPN

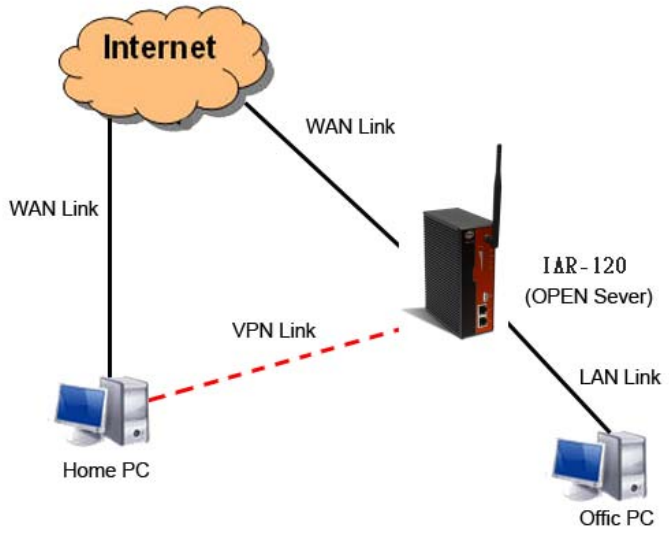
Open VPN is a full-functioned SSL VPN solution which can accommodates a wide range of configurations including remote access, site-to-site VPNs, WiFi security, and enterprise-scale remote access solutions with load balancing, failover, and fine-grained access-controls.



Open VPN

The following topology shows the common use of VPN connection from WAN side.

1: Open VPN Server



Connection to Open VPN Server

Before connecting to the Openvpn server of IMG-1312-D AP routuer, please install openvpn client software for your windows PC. It can be downloading from http://openvpn.net/download.html#stablel. The current version of Openvpn used in IMG-1312-D is version 2.0.9. The corresponding software for client should be installed. The following table describes the labels in this .

Label	Description
Open VPN Server	Enable or disable the function of Open VPN Server.
Tunnel Protocol	Select UDP or TCP protocol.
Port	Input the number about the port, and the default is 1194.
LZO Compression	Enable or disable the function of LZO Compression.
Keys Setting	Select Auto to use the preset certificates, select Manual to paste your certificates. Please install openvpn client software to generate your certificates and paste them here. For more information, please visit openvpn website.

2: Open VPN Client

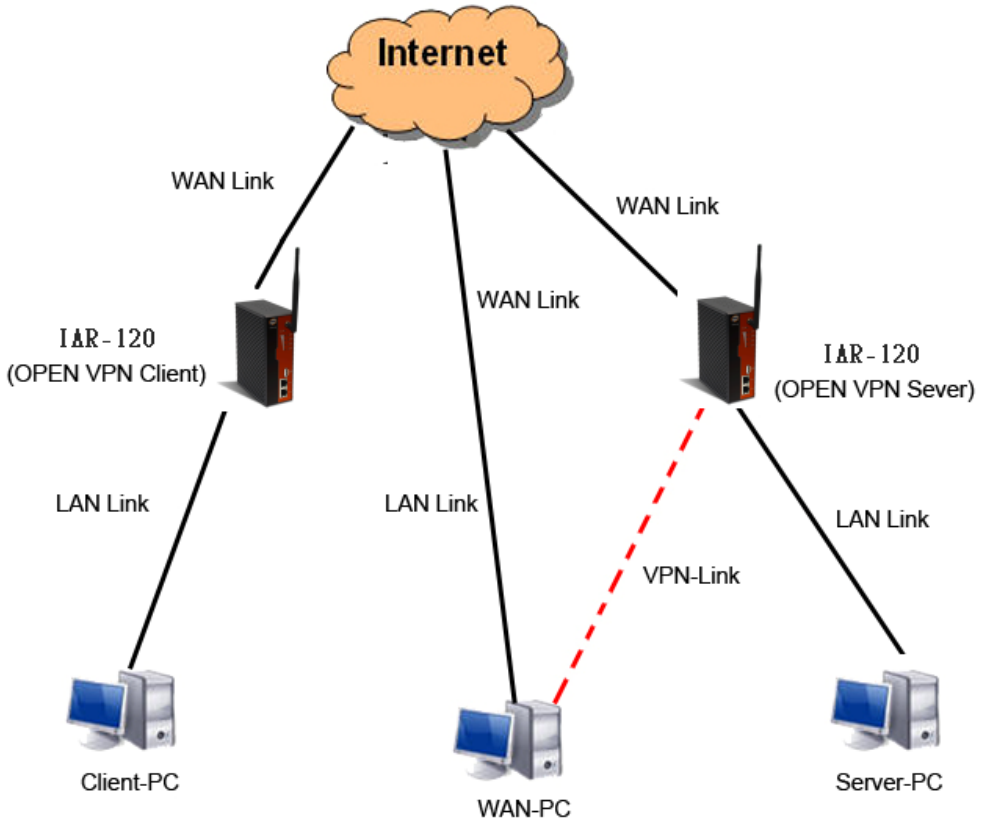
Two Media Gateways are needed for creating site-to-site VPN connection using this mode.

The following table describes the labels in this .

Label	Description
Open VPN Client	Enable or disable the function of Open VPN Client. You can allow or deny the Open VPN Client with this option.

Server IP	Enter the Open VPN Server IP address.
Tunnel Protocol	Select UDP or TCP protocol.
Port	Enter the port number, default is 1194.
LZO Compression	Enable or disable the LZO Compression.
Keys Setting	Select **Auto** to use the preset certificates, select **Manual** to paste your certificates. Please install software for openvpn client to generate your certificates and paste them here. For more information, please visit openvpn website.

3: Open VPN Server VS Client



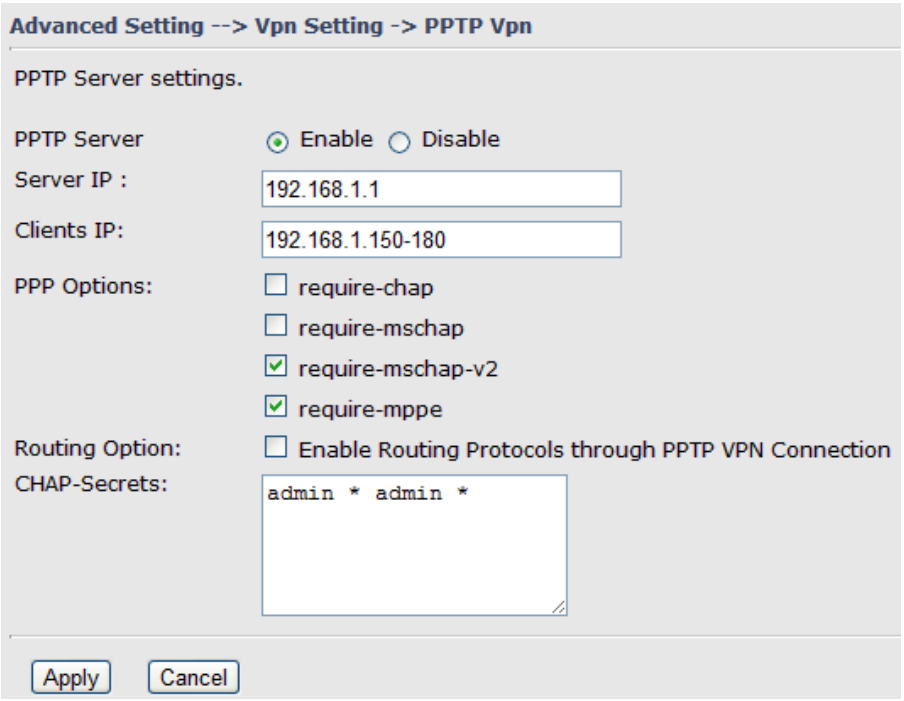
Client-PC and connect to Server-PC,WAN-PC

The chart above displays the connection of Open VPN Server and Client. The Server IP and Client IP address should configure with the same network domain.

2. PPTP VPN

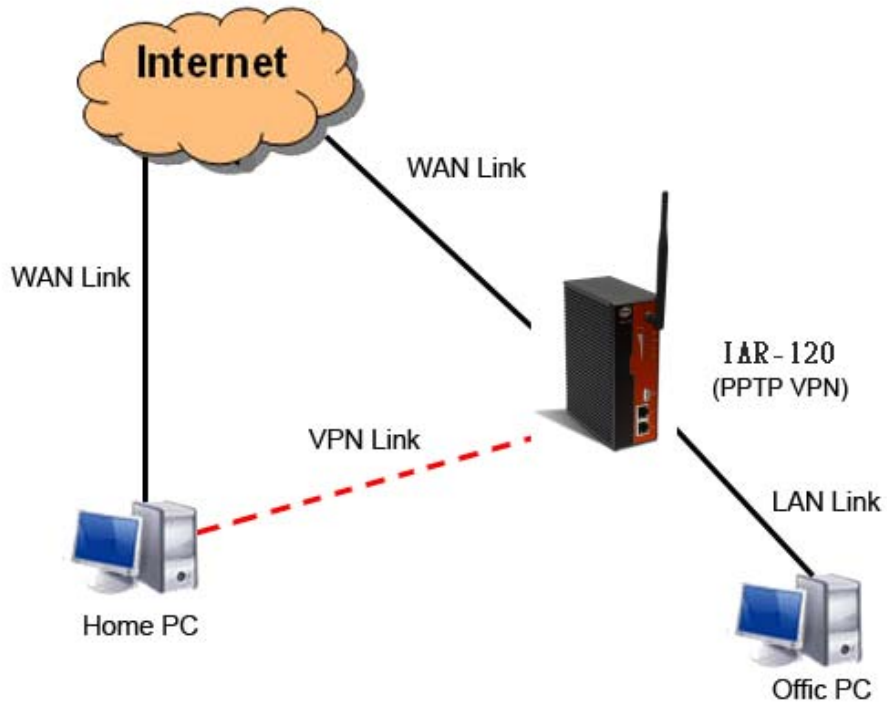
The PPTP (Point to Point Tunneling Protocol) VPN feature allows PC connected to the Media Gateway from WAN port, just like connecting in the LAN.

To create a PPTP connection to the Media Gateway, you should create a PPTP network connection if you are using a window PC. The steps are: **Right click Network > property > create a new connection > connect to my work space (VPN) > use VPN to internet > enter the user name and password** which are set in the page.



PPTP VPN

The following topology shows the common use of PPTP connection from the internet.



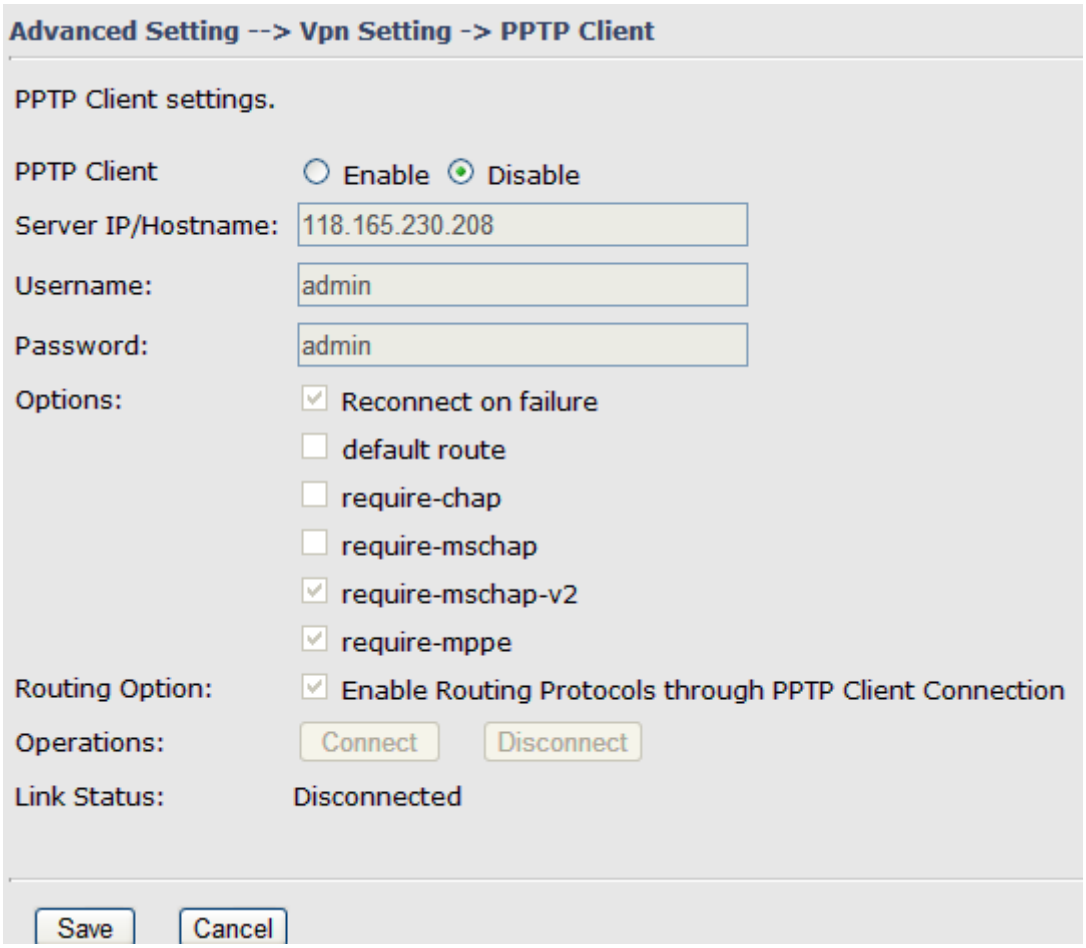
Connection to PPTP VPN Server

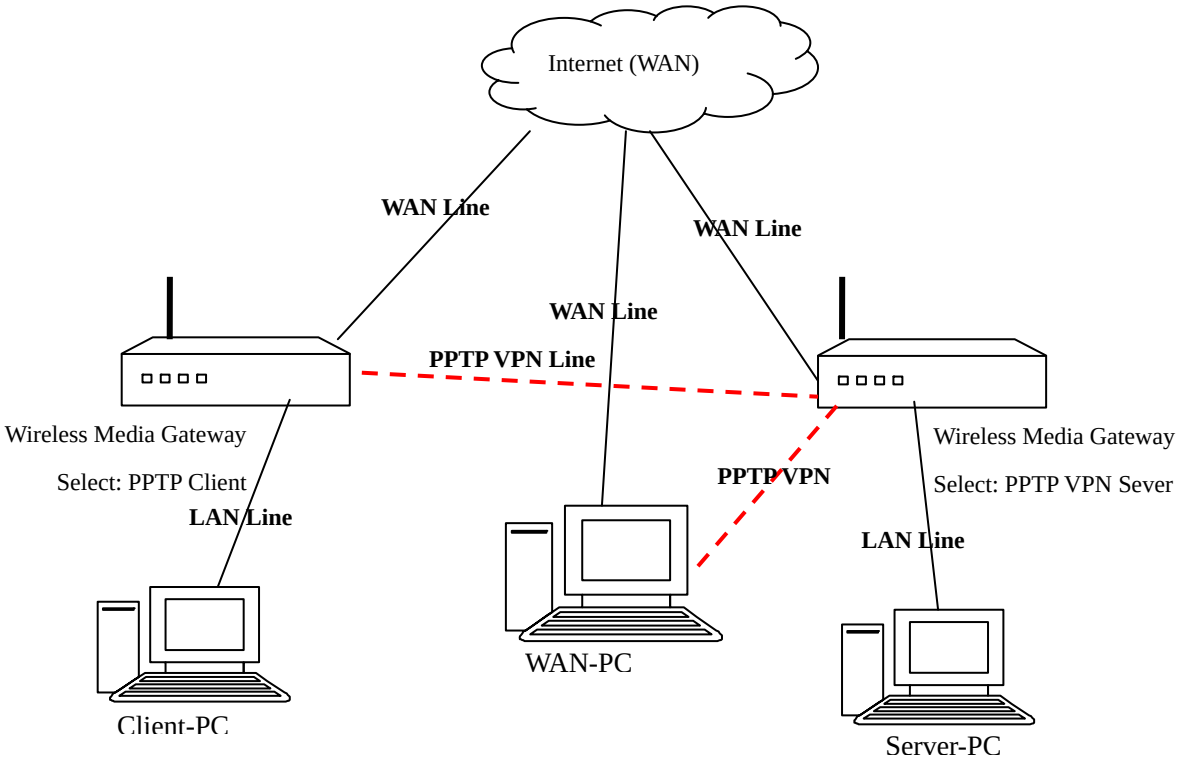
The following table describes the labels in this .

Label	Description
PPTP Server	Enable or disable PPTP VPN Server.
Server IP	Enter the server side IP address, default is the LAN port IP.
Client IP	Enter the IP address range, format is as **192.168.10.xx-xx**, connected client will be assigned the IP address.
CHAP-Secrets	Enter the username and password pairs, format is as **user * pass ***, multiple username password pairs are allowed.

3. PPTP Client

If the Media Gateway A want to link with the others which is not in the same network with the Media Gateway A, the function of PPTP client should support in the Media Gateway page.



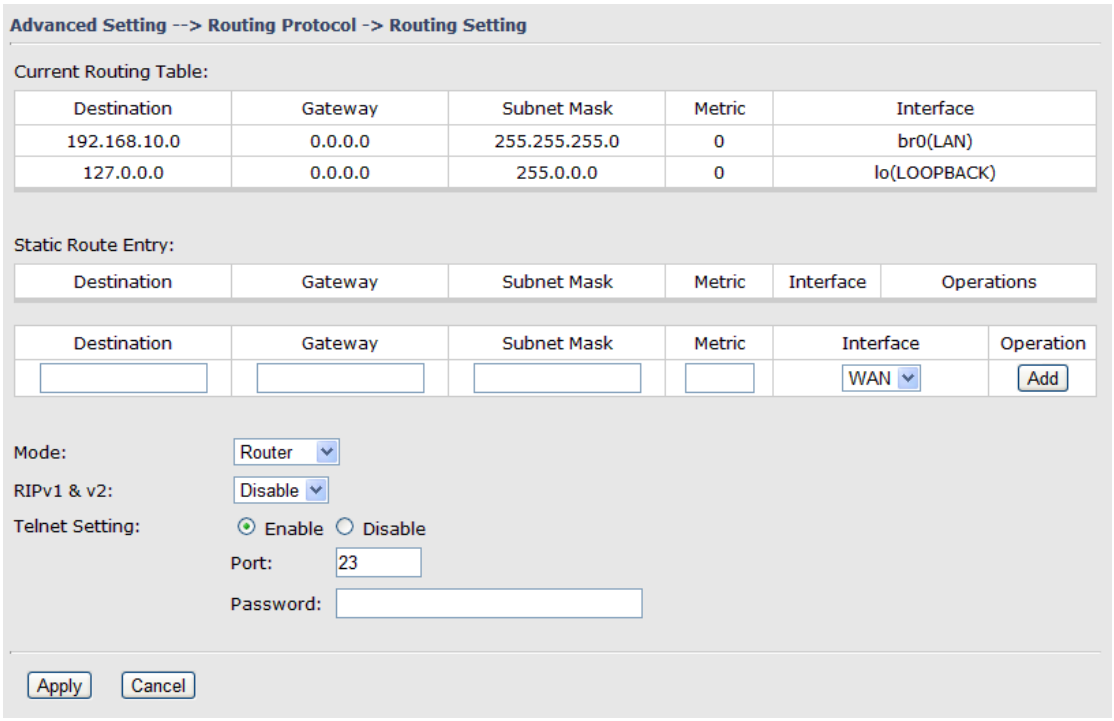


Result: Client-PC can connect to Server-PC, WAN-PC.

Label	Description
PPTP Client	Enable or disable PPTP Client.
Server IP/Hostname	Enter the server IP address or hostname.
Username/Password	Enter the username and password which is signed by PPTP server.
Option	**Reconnect on failure:** Pitch on this option, it will be reconnect when the link is on failure. **Require MPPE:** Choose Enable Require MPPE (Microsoft Point-to-Point Encryption) to encrypt data across Point-to-Point Protocol (PPP) and Virtual Private Network links.
Operations	Click "Connect" to link the server, if or not, you can click ""Disconnect" to break off from the server.
Link Status	Show the status about the link.

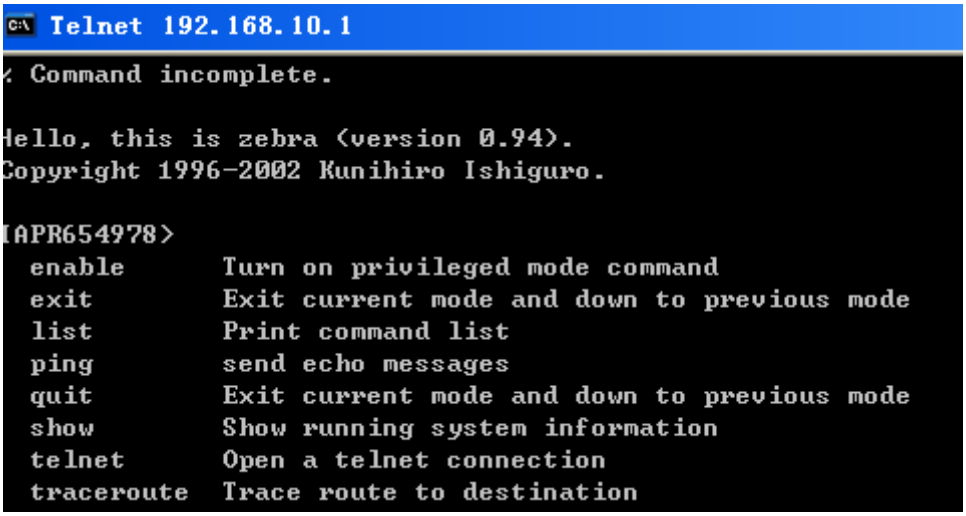
Routing Setting

This page shows the information of routing table. The initial state of the Media Gateway connect to the WAN, it will be based on the outside networks to access the routing table automatically. You can refer the shows about the bellow page.



Label	Description
Current Routing Table	Show the current the routing information.
Static Route Entry	Not RIP and enter the right value in the textbox will be showing.
Mode	If you want to the PC in the Media Gateway can visit the outside network, only choose the **Gateway Mode**; if or not, you choose the **Media Gateway Mode.**
RIPv1 &v2	Choose "Disable" in the Static routing.
Telnet Setting	Only use in the Dynamic routing.

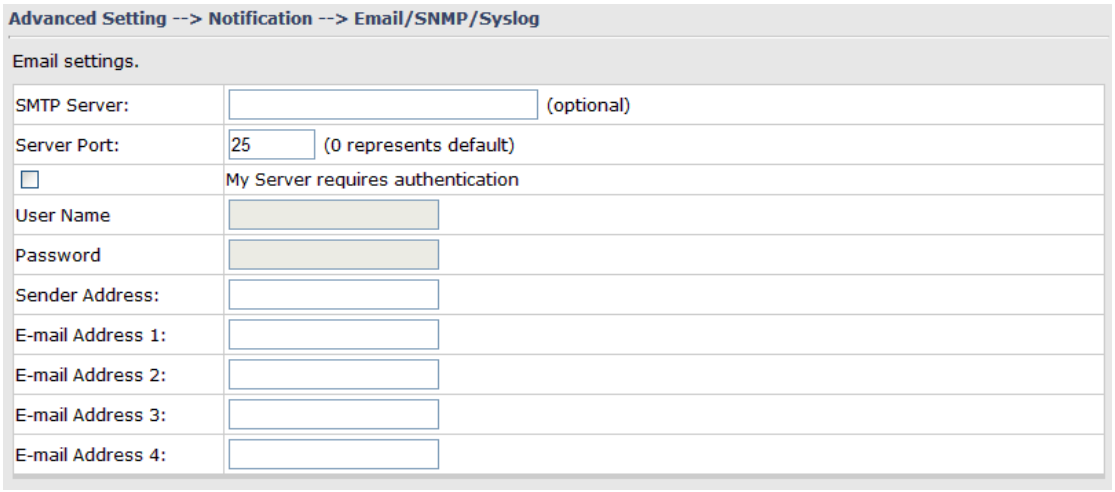
Simultaneously, only use the Telnet function in the dynamic routing. You can telnet the LAN IP and there are many orders.



Notification

1. Email/SNMP/Syslog

Email Settings

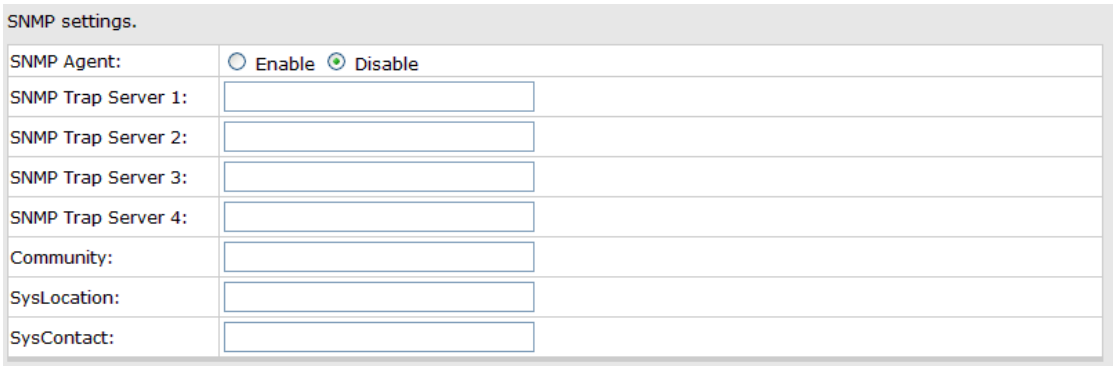


Email Settings

The following table describes the labels in this .

Label	Description
SMTP Server	Simple Message Transfer Protocol, enter the backup host to use if primary host is not available while sending mail by SMTP server.
Server Port	Specify the port where MTA can be contacted via SMTP server.
Username	Username to login the E-mail address
Password	Password to login the E-mail address
Sender address	Sender E-mail address
E-mail Address 1-4	Enter the mail addresses.

SNMP Settings

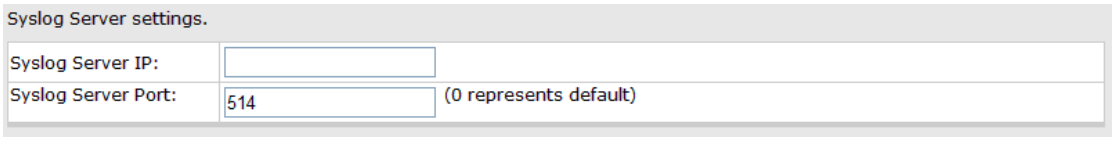


SNMP Settings

The following table describes the labels in this .

Label	Description
SNMP Agent	SNMP (Simple Network Management Protocol) agent communicates with the SNMP manager. The agent provides management information to the NMS by keeping track of various operational aspects of the system. Turn on to open this service and off to disable it.
SNMP Trap Server 1-4	Specify the IP address of trap server, which is the address to which SNMP trap messages are sent.
Community	Community is essentially password to establish trust between managers and agents. Normally "public" is used for read-write community.
SysLocation	Specify sysLocation string.
SysContact	Specify sysContact string.

Syslog Server Settings



Syslog Server

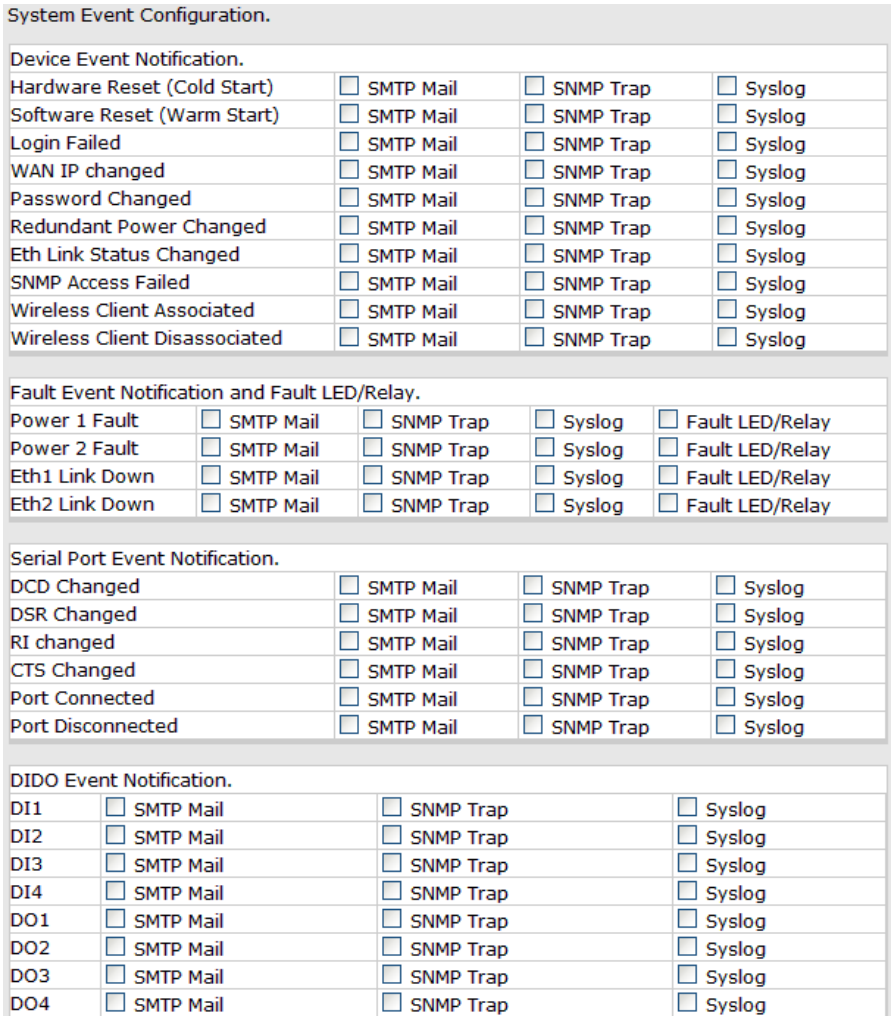
The following table describes the labels in this .

Label	Description

Syslog Server IP	Not only the Syslog keeps the logs locally, it can also log to remote server. Specify the IP of remote server. Leave it blank to disable logging remotely.
Syslog Server Port	Specify the port of remote logging. Default port is 514.

2. System Event

When specified event is triggered, the notification procedure will be performed according to the type of the event. Which notification would be performed depends on the selection of corresponding option in the **Advanced Setting > Notification > System Event** page.



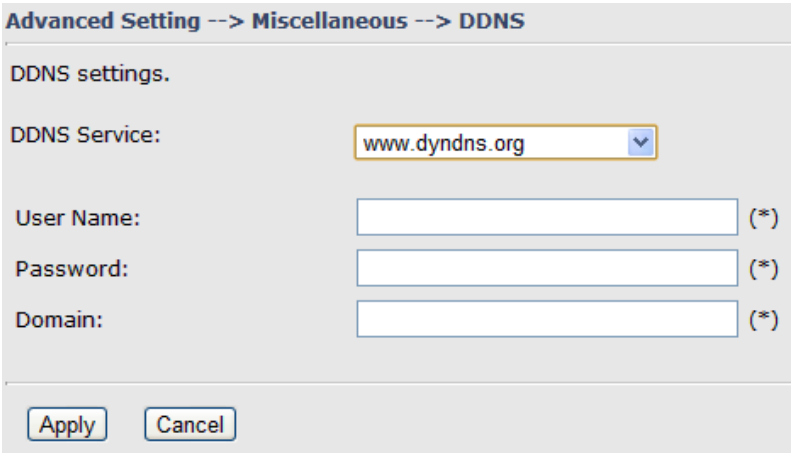
System Event

System events record the activities of the Wireless Media Gateway system. When the setting changes or action performs, the event will be sent to administrator by email.

A trap will also be sent to SNMP trap server. The Syslog will record the event locally and may send the Syslog remotely to a Syslog server. If serious event occurred, such as the power failure or link down, the fault led will be switched on as warning indication.

Miscellaneous (DDNS)

Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP address.



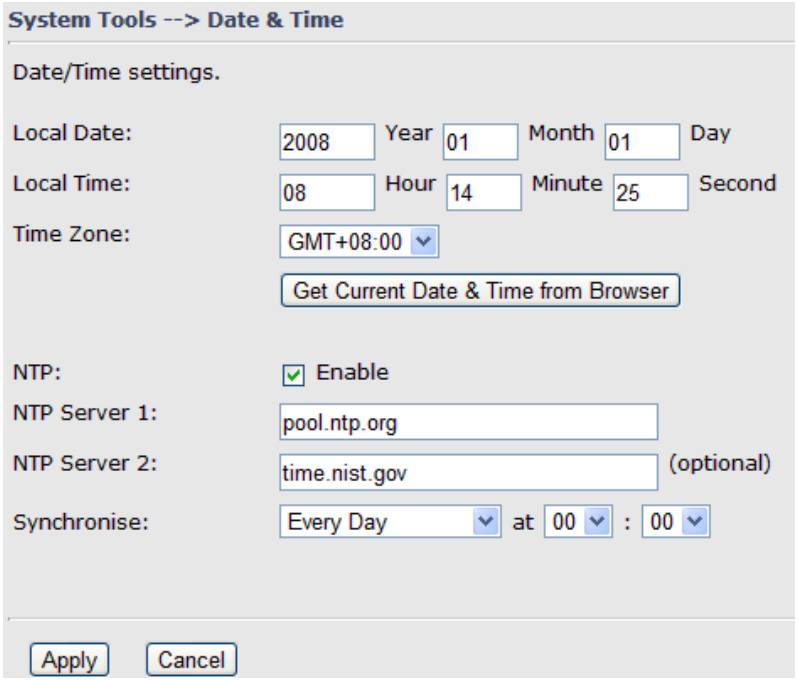
The following table describes the labels in this .

Label	Description
User Name	Enter the user name for your DDNS account.
Password	Enter the password for your DDNS account.
Domain	Enter the domain names provided by your dynamic DNS service provider.

5.3.4 System Tools

Date & Time

In this page, you can set the date & time of the device. The correct date & time will be helpful for logging of system events. A NTP (Network Time Protocol) client can be used to synchronize date & time with NTP server through internet.



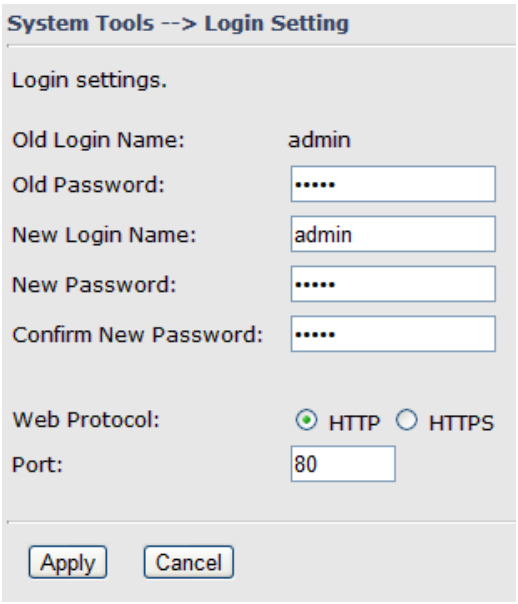
Date & Time

The following table describes the labels in this .

Label	Description
Local Date	Set local date manually.
Local Time	Set local time manually.
Time Zone	Select the time zone manually
Get Current Date & Time from Browser	Click this button; you can set the time from your browser.
NTP	Enable or disable NTP function to synchronize time from the NTP server.
NTP Server 1	The primary NTP Server.
NTP Server 2	The secondary NTP Server.
Synchronize	This is the scheduled time when the NTP synchronization performed.

Login Setting

At this page, the administrator can change the login name and password. The default name and password is **admin** and **admin**.



Login Setting

The following table describes the labels in this .

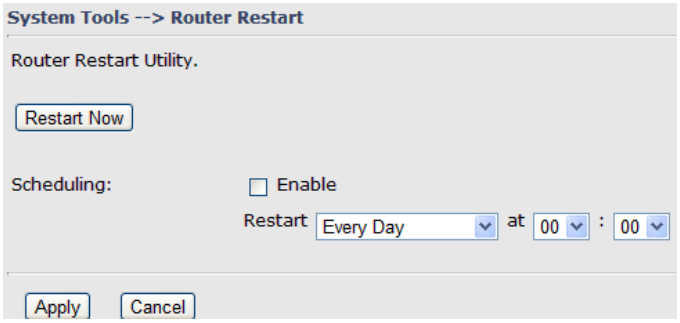
Label	Description
Old Name	This field shows the old login name.
Old Password	Before making a new setting, you should provide the old password for verification. Acceptable characters of this field contains '**0-9**', '**a-z**', '**A-Z**' and must be between 0 to 15 characters in length. An empty password is also acceptable.
New Name	Enter a new login name. Acceptable characters of this field contains '**0-9**', '**a-z**', '**A-Z**' and must be between 1 to 15 characters in length. An empty name is not acceptable.
New Password	Enter a new login password. Acceptable characters of this field contains '**0-9**', '**a-z**', '**A-Z**' and must be between 0 to 15 characters in length.
Confirm New Password	Retype the password to confirm it. Acceptable inputs of this field contains '**0-9**', '**a-z**', '**A-Z**' and must be between 0 to 15 characters in length.
Web Protocol	Choose the web management page protocol. HTTP and HTTPS are both supported.
Port	Choose the web management page port number. For HTTP, default port is 80; For HTTPS, default port is 443.

HTTPS (HTTP over SSL) is a Web protocol which encrypts and decrypts user page

requests as well as the pages that are returned by the Web server.

Media Gateway Restart

If you want restart the Media Gateway through the **Warm Reset**, click **Restart Now** to restart the Wireless Media Gateway. Also, you can set a **Scheduling** time to make the Media Gateway restart.



Media Gateway Restart

Firmware Upgrade

Firmware Upgrade

Newer firmware may provide better performance or function extensions. To upgrade the new firmware, you need a firmware file which matches the model of this Media Gateway. It will take several minutes to upload and update the firmware. After the upgrade is done successfully, reboot the Media Gateway to utilized new firmware.

Important Notice: DO NOT POWER OFF THE MEDIA GATEWAY OR PRESS THE RESET BUTTON WHILE THE FIRMWARE IS BEING UPGRADED.

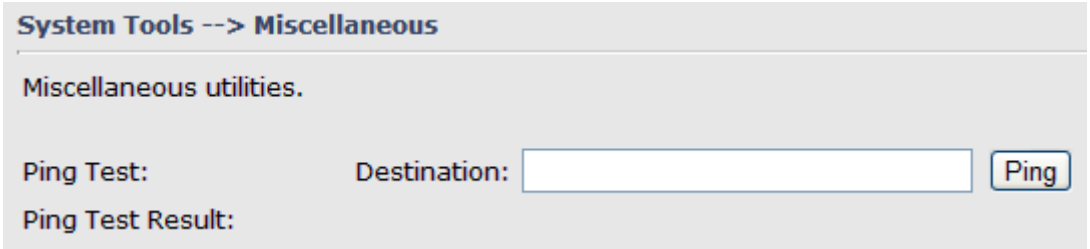
Save/Restore Configurations

Save/Restore Configurations

The following table describes the labels in this .

Label	Description
Download configuration	The current system settings can be saved as a file into your PC.
Upload configuration	The configuration can be restored to the Media Gateway. To reload a system settings file, click on **Browse** to browse your local hard drive and locate the system settings file previously saved. Click **Upload** when you have selected the file.
Restore Default Settings	You may also reset the Media Gateway to the factory settings by clicking on **Restore Default Settings**. The Media Gateway will reboot to validate the default settings.

Miscellaneous (Ping)



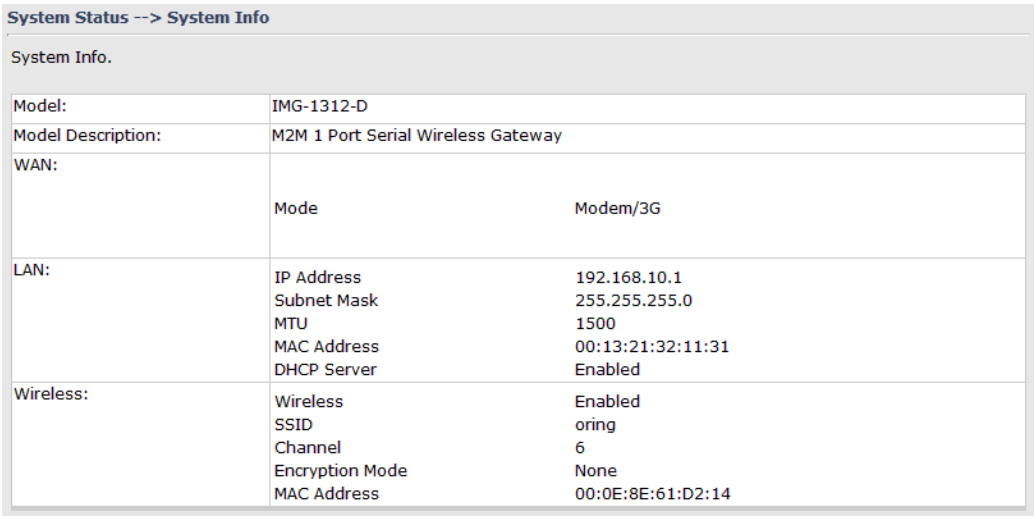
Miscellaneous

The Ping Test is used to send Ping packets to test if a computer whether it is on the

Internet or test if the WAN connection is OK. Enter a domain or IP in the destination box and click Ping to test.

5.3.5 System Status

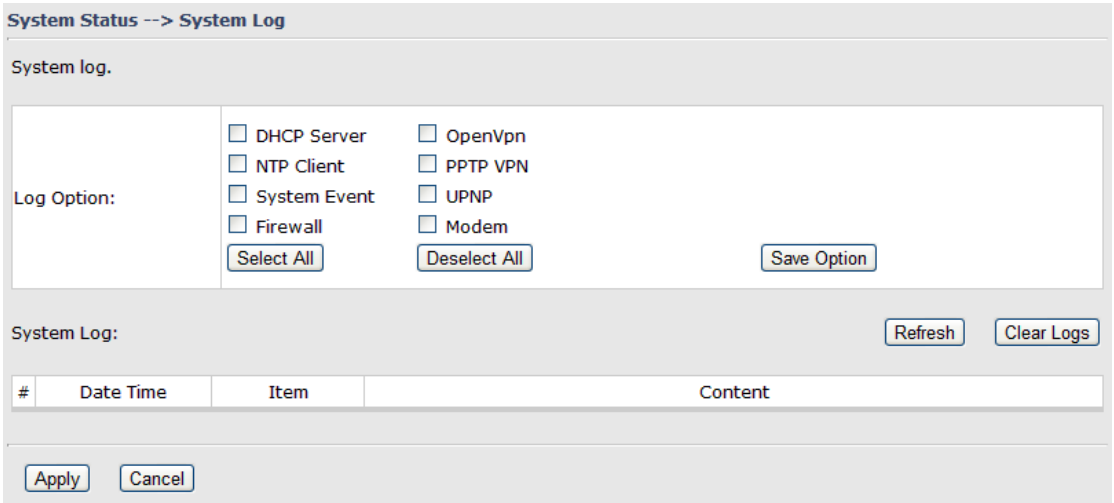
System Info



System Info

This page displays the details information for the Media Gateway including model name, model description, firmware version, WAN, LAN and wireless settings.

System Log



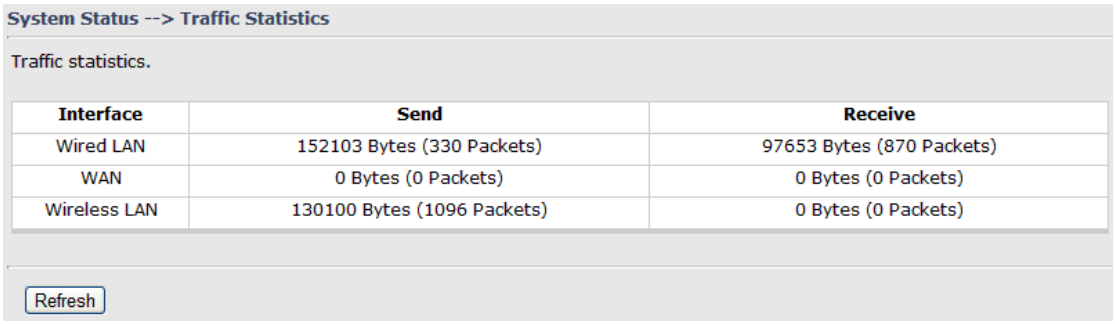
System Log

The Media Gateway keeps a running log of events and activities occurring on the Media Gateway, several filters are provided for displaying related log entries.

Click the button '**Refresh**' to refresh the page.

Click the button '**Clear Logs**' to clear the log entries.

Traffic Statistics



Traffic Statistics

This page displays the network traffic statistics for both received and transmitted packets through the Ethernet port and wireless connections.

Technical Specifications

ORing M2M Model	IMG-1312-D
Physical Ports	
10/100 Base-T(X) Ports in RJ45 Auto MDI/MDIX	**2**
SIM card slot	**1**
Cellular interface	
Cellular Standard	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA
Band options	Dual band : HSUDPA 1900 / 2100 MHz Quad band : GSM / GPRS / EDGE 850 / 900 / 1800 / 1900 MHz / WCDMA / HSDPA 850 / 900 / 1900 / 2100MHz
Antenna Connector	Reverse SMA connector x1
Antenna	GSM/DCS/UMT 3G antenna x1
WLAN Feature	
Antenna Connector	Reverse SMA connector x1
Antenna	2.4GHz Wi-Fi ANT x1
Radio Frequency Type	DSSS
Modulation	IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g: OFDM with BPSK, QPSK, 16QAM, 64QAM
Frequency Band	America/FCC: 2.412~2.462 GHz (11 channels) Europe CE/ETSI: 2.412~2.472 GHz (13 channels)
Transmission Rate	IEEE802.11b: 1/ 2/ 5.5/ 11 Mbps IEEE802.11g: 6/ 9/ 12/ 18/ 24/ 36/ 48/ 54 Mbps
Transmit Power	IEEE802.11b/g: 18dBm
Receiver Sensitivity	-81dBm @ 11Mbps, PER< 8% -64dBm @ 54Mbps, PER< 10%
Encryption Security	WEP: (64-bit ,128-bit key supported) WPA: WPA2 : 802.11i(WEP and AES encryption) WPAPSK (256-bit key pre-shared key supported) 802.1X and Radius supported TKIP encryption
Wireless Security	SSID broadcast disable
Serial Ports	
Connector	DB9 male x 1
Operation Mode	RS-232/RS-422/RS-485(2W/4W). Which can be configured by utility
Serial Baud Rate	110 bps to 460.8 Kbps
Data Bits	5, 6, 7, 8
Parity	odd, even, none, mark, space
Stop Bits	1, 1.5, 2
Serial signals	RS-232 : TxD, RxD, DCD, RTS, CTS, DSR, DTR, RI, GND RS-422 : TX+, TX-, RX+, RX-, GND RS-485 (2W): D+, D-, GND RS-485 (4W): TX+, TX-, RX+, RX-, GND

Digital Input / output	
Digital input	4 digital inputs on terminal block. Power input voltage: 5V TTL
Digital output	4 digital outputs on terminal block. Power output voltage: 5V TTL
LED Indicators	
Power indicator	Green On: Power is on and functioning Normally.
10/100TX RJ45 port indicator	Green for port Link/Act.
WLAN indicator	WLAN Link /ACT: Green: Link
Power	
Power Input	Dual DC inputs. 12-48VDC on 6-pin terminal block
Power consumption (Typ.)	6.5 Watts
Overload current protection	Present
Reverse polarity protection	Present
Physical Characteristic	
Enclosure	IP-40
Dimension (W x D x H)	41 (W)x 114 (D)x153 (H) mm (1.61 x4.48 x6.02 inch.)
Weight (g)	602 g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-10 to 60°C (14 to 140°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory Approvals	
EMI	FCC Part 15, CISPR (EN55022) class A
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6
Safety	EN60950-1
Warranty	3 years